THE FLORAL WORLD.

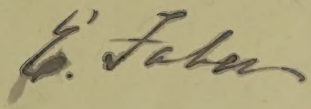
...PURSELLERS
...OCKTON ON TEES

Vol. I. L-13
1858-1870 L1-100
Coloured plates
in all 34 col. plates
2 col. pl.

THE UNIVERSITY
OF ILLINOIS
LIBRARY
634.05
FLW
v.1

Coloured Flowers

I'm green
>30% Bicbased
Verified by ASTM D6866
CoLibrì
COVER SYSTEM
Made in Italy



LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

La Belle Alliance.

THE

FLORAL WORLD

AND

GARDEN GUIDE.

VOLUME I.

LONDON
GROOMBRIDGE AND SONS,
5, PATERNOSTER ROW.
1858.

LONDON: PRINTED BY GROOMBRIDGE BROTHERS.

634.05
FLW
v.1

CONTENTS.

	PAGE.
About Ivy	131
Allotment Culture of Root-crops	249-250
Amateurs' Preservative Pit	17
American Blight, remedy for	28
American Conifers	241-245-246
Annuals to Sow in February	47
Ants and Aphides	234
Arbor Vitas	247
Artichokes	283
Australian Lily	126
Azaleas, to propagate	142
Agave Americana	167
Azaleas done Blooming	166
Balcony in the City, Planting of	142
Beaton's Experiments on Vine Culture	5-33
Bee-keeping, new Inventions in	168
Beds for the Ranunculus	41
Bedding-stock, to increase	92
Bedding-plants, to preserve	230
Begin at the Beginning	100
Berberis Japonica	56
Blackberry and Raspberry Hybrid	262
Boite a houppe	16
Boyd's Adjusting Scythe	163
Bouvardias, to Propagate	83
Broome on the Chrysanthemum	87
Brown, Dr. R., life of	146
Buckland's Sweet-water Grape	261
Budding, remarks on	165
Budding the Rose	183-188
Bulbs, to Purchase and Plant	256-257
Cacti, and Botanical Classifications	168
Calceolaria Culture	114
Calla Æthiopica, treatment of	120
Calceolarias in Winter	263
Californian Conifers	241-246
Camellia, propagation of	190
Camellias, to Retard	263
Camellias at Sydenham	75
Camellias done Blooming	45-69
Canterbury Hoe	162
Carrot, Varieties and Culture of	249
Causes of failure in Greenhouse Management	238
Charred rubbish for surface-dressing	238
Cheap Preservative Pit	17
Cheap Greenhouse	263
Chinese Primula	70-77
Chinese Potatoe	81
Chrysanthemum Culture	57-66-87-251
Cinerarias, to propagate	141
Climbers for Greenhouse	23
Climbers for North Walls	24
Climbers for West Walls	52
Climbing Ferns	148
Cockscombs, to grow	143
Cold Pit sunk below the Level	263
Coniferous Trees and Shrubs	241
Conifers at Kew	25
Crystal Palace Flower Shows	125-124
Cucumber Seed	71
Cucumber and Melon Culture	82
Cuero Guano	103
Cultivation of Annuals	54
Culture and Training of the Raspberry	31
Custard Marrow, to grow	82
Cuttings, how to Make, and how to Strike them	202-213-215
Cuttings, Propagating pot for	152
Daddy Longlegs	142
Dahlia Culture	167
Dahlia Show, Great National	217-221-260
Dahlias, List of Winning Flowers	260
Delphinium formosum, and Hendersonii	239
Deodara cedar	245
Dielytra spectabilis seed	192
Dioscorea Battatas	81
Draining an Orchard, necessity of	28

	PAGE
Drying Plants and Flowers	83
Dung-bed too hot	119
Early Planting, its advantages	256
Edgings for Gardens	42
Editor's address	1
Embothrium coccineum	129
Eugenia Ugni	47
Euphorbia Fulgens	108
Evergreen Flowering Shrubs	15
Evergreens recently planted	240
Experimental Vine Pruning	33
Exhausted hot-bed, to manage	144
Fairy Rings, cause of	118
Ferns—British and Exotic	8
Ferns in a Wardian Case	9
Ferrassier's Patent Wheelbarrow	69
Fig Tree in Fruit	281
Floral Pyramid	138
Florists' Flowers—the Cineraria	14
Flowers in the City	251-263
Flowers to Dry	47
Flower-pots, newly invented	152
Fruits, New Varieties of Merit	261
Fruit-room, Management of	269
Fruit-trees, improving collections of	28
Fruiting Vines in Greenhouse	94
Fuchsias, to bloom Seedlings	179
Fumigating, Simple Mode of	264
Garden and Greenhouse Work :—	
January	21
February	44
March	70
April	90
May	113
June	139
July	164
August	189
September	212
October	236
November	256
December	271
Garden Plans	70-85
Garden Tools, improved	46
Garden Statuary, to clean	143
Gardener's review of the past year	3
Genista Canariensis	55
Geographical Distribution of the Pine Family	241-242
Geraniums for Winter blooming	202-213
Glasses for Hyacinths	206
Grapes, Shrivelled	263
Grape Vines in pots	273
Grasses, Grass-plots, and Lawns	60
Green-fly on peaches, &c.	126
Greenhouse, substitute for	230-239
Greenhouse Plants, new	30
Greenhouse Plants in Winter	22
Greens, to Secure in Winter	251
Green Manures	160
Grocer's currants for heating	143
Gooseberry Culture	252
Guano, and its uses	159
Gynerium argenteum	61
Hardy Evergreen flowering Shrubs	129
Hardy Grapes for Walls and Greenhouses	261
Hardy Perennials for Blooming in the Borders	214
Haythorn's Hexagon Garden Nets	89
Heating by Gas	35-143-191-196-239-248-275
Hedgehogs destructive in a Greenhouse	235
Heliotropes	282
Her Majesty's Fruit Basket	141
Hoeing and Mowing	162
Holcus saccharatus; or, Chinese Sugar-cane	127
Hollies, to raise from Seed	240
Hollyhock, Culture of	188-192
Hollyhock Seed, to Save	215
Hot-water Heating	70

854882

	PAGE.
How to make a Hot-bed	71
How to dig	105-179
House Refuse, uses of	161
Humea Elegans, is it Poisonous?	239
Huyshe's Victoria Pear	263
Hybridizing, the art of	111
Hyacinths in Summer	144
Hyacinths, list of sorts	233
Insects, treatment of	184
Improvement of Old Gardens	20
Ivy, its History, Culture, &c.	131
Jardinieres of Mosiac Glass	153
Junipers for Ornamental Planting	247
Kalmia latifolia	15
Keeping out Frost	24
Kitchen Crops, destruction of	191
Laburnum Blooming in Autumn	240
Lancashire Gooseberries, list of	254
Latter on the Culture of Primulas	77
Lattice Plant	148
Lawn with Beds	263
Lawns, to make and improve	60
Laying out a Garden	19-86
Leaves, value of, for manure	80
Leptodactylon Californicum	127-221
Lily of the Valley Culture	215
Linnæan Society's transactions	7
Lois Weedon's System of Agriculture	78
London Gardens	49-251
Lycopods in Wardian Case	12
Manures, to Manage	257
Manures and Town Plots	103
Marrows, Pumpkins, and Squashes	70-82
Melon Culture	167-192
Mespilus Japonica	207
Meteorology of the Months 24-48-72-96-120-144 168-192-216-240-268-284	
Mildew in the Vine and Potatoe	5
Monstrosities in British Vegetation	7
Mountain Vegetation	243
Mushroom Culture	143-207-234
Myrtle Pruning	283
New method of Growing Peas in dry weather	165
New Chrysanthemums	75
New Stove and Greenhouse Plants	30
New Dahlias	70
New Fruits	84
New Plants described	180
Night Soil, uses and preparation of	159
North Aspect, uses of	22
Novel Continental Fruits and Vegetables	77
Oleanders, treatment and varieties of	239
Old Walls	150
Orchard, draining and recovery of	28
Ornamental Foliage Plants	95
Out-door Grapes	167
Pampas Grass	61
Parsnip, varieties and Culture of	250
Passiflora cœrulea	239
Pawlonia Imperialis, Culture of	151
Peaches Ripened on Standards	261-262
Pears of unusual weight	4
Pear Trees Failing	167
Peas, list of early	21
Pegging-down, the best method of	151
Pelargonium La Belle Alliance	76
Pelargonium, culture of	82
Phloxes for Border Culture	263
Phloxes, a dozen good	47
Picturesque effects of Gardening	39
Pines distinguished for grace and beauty	247
Plan of a Town Garden	36
Planning a Kitchen Garden	18
Planting Season and its Work	256
Planting a Fern Vase	9
Planting the Ranunculus	41
Planting for Pictorial Effect	15
Planting on raised beds	139
Plants for a Rootery	119
Plants to grow under the drip of Trees	52
Plants under Trees	71
Plants for a Cool Greenhouse	95
Plant and Seed Exchanges	262
Platform Planting of Fruit Trees	167
Platyloma Geraniifolia	8
Pleasures of a Kitchen Garden	92
Pomegranates in Pots	47
Pomological Society	7-27
Potatoe Disease and its remedy	5
Potatoe Sets	71-224
Potting Practices	179
Preparations for Spring Shows	8
Preserving Fruits	24
Profitable Gardening:—	
Digging and Draining	105
Edgings and Permanent Planting	42
Earthwork and Preparation of the Soil	78
Manures and Composts	158
Planting of, and Improving a Kitchen Garden	18
Potatoe Culture	222
Profitable Plan of Cropping, Seed Saving, and Rotation of Crops	174
Root Culture.—Carrots, Parsnip, and Turnip	249
Pruning the Gooseberry	253
Ransome's Siliceous Stone	9
Recovery of Plants from Frost	24
Renovating Flower-beds	238
Repairing Fruit Walls	150
Rhododendron Griffithianum, *var.* Aucklandii	204
Rhododendron Veitchianum	204
Rockery Construction	109
Root Pruning	29
Root-stumps and Rockery	95
Rose, Culture of	166-275
Rustic Furniture	157
Salter's new Chrysanthemums	75
Seakale and Asparagus Beds	91
Seeds to be Sown in February	45
Seedling Fuchsias	178
Seedling Potatoes	216
Selection of Annuals	53
Selection of Ferns for a Wardian Case	12
Selection of Greenhouse Plants	23
Selection of fruit for Small Gardens	23
Senecio mikaniæ	128
Sigma's Aphis Powder	126-143
Skeleton Leaves	95-109-155
Slugs and Wire-worms, to Trap	96
Smith's Rev. Mr., Method of Wheat Growing	78
Smith's new Fuchsias	72
Spring Flowers	75
Spruces, species of	244-245
Stamford Pippin Apple	7-84
Standish's new double Camellia	75
Stove Plants (new)	30
Stove Management	69-46
Strawberry Culture	119
Sulphur as a Preventive of Mildew, &c.	5-16
Swamps, Conifers that Grow in	243
The Cardinal Apple	77
The Spring Season	74
The Season, 1857	2
Thunbergias, management of	119-196
Town Garden, plan of	36
Torreya grandis	127
Trees and Shrubs for Town Gardens	50
Trenching and deep Digging	79-94
Tropical Plants, Management of	92
Trout Salad from Dresden	77
Tulip Bed	283
Tank-heating, and early Forcing	231
Trumpet Lily, to manage	120
Tulips in Winter	21
Turf-pit described	17
Turnip Culture	250
Variegated Mint, to Propagate	263
Verbena Cuttings	263-240
Veronicas, Culture of	191
Vine Culture	33-34-92-94
Watering Plants	71-119
Winged Pea Seeds	80-118
Waltonian Case, price of	240
Weather of February	48

THE

FLORAL WORLD

AND

GARDEN GUIDE.

JANUARY, 1858.

HAPPY NEW YEAR to you, and three cheers for the "FLORAL WORLD," which now makes its *debût*, and hopes to be useful in its infancy and continue lusty to a green old age. It does not appear with any flourish of trumpets or roll of drums; it does not ask for support on the strength of great promises, but desires to be judged for its merits, and accepted or rejected according to its deserts.

A very few words will tell its object, and its title and the contents of the present number the rest. It is projected to bind together a rather large circle of gardening amateurs, who hitherto have had no literary system of centralization. They want information on all sorts of subjects; they want to ask questions, and to get civil answers; and pretty often they desire to have a whole code of some special department of plant culture, condensed into the compass of a nut-shell. They are growers of flowers, fruits, and vegetables, and many of them exhibitors in each of those three departments; and, to keep pace with the times, they need to be informed, from month to month, what is going on in the "FLORAL WORLD," what new plants have been introduced from "far countries," what new sorts have been raised at home, and, perhaps, more important still, what, among the immense numbers of varieties we possess, deserve to be retained, improved, preserved, or flung to Carlyle's *limbo*.

These good folks, moreover, want to communicate to others of kindred spirit, scraps of original knowledge derived from their own observation and experience—to make suggestions of plans, and projects, and processes, bearing on their favourite pursuit, either as to its actual improvement and simplification, or the rendering cheap and come-at-able things that have hitherto been beyond the reach of folks not blessed with fortunes. Then, in return for such evidence of good fellowship, they would sometimes want a hint, or an instruction, or an opinion, on some point that might

puzzle them; and straightway the Editor, or some contributor, or reader of the "Floral World," becomes their friend; and so in a constant interchange of sympathies, opinions, enquiries, and facts, the "Floral World," must of necessity prove useful and agreeable as a monthly mirror of gardening intelligence.

This is to be emphatically an amateurs' journal, but the professional gardener is not to be shut out; by no means; he is to be welcomed warmly; for, though, like most other mortals, he may have his failings, to which we shall not shut our eyes, he claims our regard, and we acknowledge that our hobby is constantly indebted to him; and we feel assured that he can help us in establishing our fraternity of jolly gardeners.

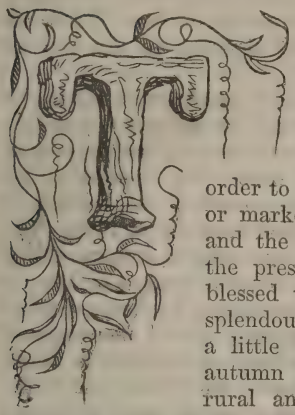
Now, we know that there are many ably-conducted gardening journals that concentrate in their pages evidences of the highest skill—journals that are ripe as to age, and up to the mark in all the departments they embrace; and if we were to project a competitor, we should deserve to break down at the first step. But we do not aim at weakening any one of them, whether big or little; we would not willingly withdraw from them a single subscriber, nor do we expect to—for the simple reason, that we open our pages to a class of readers whose wants are not met by any of the existing gardening periodicals. If a man has extensive ranges of orchard houses, and pineries, and vineries, and forcing pits, and counts his roses by the thousand, he does not need the help of a little monthly adviser in gardening; but amateurs with moderate means, and ambition to excel in the various practices of horticulture, and in the floral decoration of the garden, greenhouse, conservatory, and the windows of the dwelling, there is and has long been a need for a cheap and practical medium of intelligence and intercommunication; and here it is—the "Floral World"—its price within the means of all, and we trust so planned as to be universally acceptable.

Repeating the terms of our prospectus, it "will be devoted entirely to gardening subjects, and no subsidiary topics will be allowed to interfere with the full consideration of these, as represented in the several departments of plant houses, flower, fruit, and vegetable culture, garden scenes and embellishments, the management of allotment lands, flower shows, and horticultural botany. These will be severally treated, in a simple and practical manner, by experienced pens, and the fullest attention will be given to communications from correspondents, whether seeking or conveying information."

We might, of course, say a vast deal about what we mean to do, and predict the success we hope for, but "promises are like"—you know what; so, trusting to our fourpenny sample, we say no more about ourselves, but again wish our friends a Happy New Year, and know they will respond with "Success to the 'Floral World!'"

The Past Season.—Among the many curious results of the unusual warmth of the past summer, we may note the ripening, in the open air, of the fruit of the myrtle, Aralia japonica, white muscadine, Burgundy, Syrian, and Lacryma grapes. Blackberry blossoms were gathered at Farnham on the 12th of December, and many things are flowering out of season.

A GARDENER'S REVIEW OF THE PAST YEAR.



IME has brought us to the close of another year, and in the midst of winter gloom and darkness, we call to mind the glories of the season that has passed. The oldest amongst us might tax memory severely, in order to recall a summer of more equal brightness, or marked by more cheering results for horticulture and the sister sciences of any within the experience of the present generation. Providence has abundantly blessed us in the fruitfulness of the earth, and the splendour of the seasons, and, though the spring was a little backward, a more magnificent summer and autumn have not written their bright records in the rural annals of modern times. It has come to its appointed end—"all that's bright must fade," and remembrance of pleasures realized now gives place to hopes for their renewal. If the old year, just hurried into the "silent land," has carried many regrets with it, its infant successor brings with New-year's morning many a joyous anticipation to our hearts; for—

> "As the snowdrop glimmers as winter goes,
> As coming summer will blush with the rose,
> As the earth once more from its frosty bond
> Will be free and glad, and in songs respond,"

so we must keep pace with the revolutions of Time, and inscribe PROGRESS as a motto for our banner.

If commercial disaster and wide-spread industrial distress have cast a cloud over Christmas rejoicings, and chilled the warm heart-throbbings with which most of us welcome a new year, it is at least something to know that the visitation is not to be counted among the dispensations of Providence, who has given "the earth her increase" as of old, and shed upon the changing seasons even more than their ordinary lustre. The returns of most crops have been above the average, wheat especially; the estimates of the *Mark Lane Express* show that in 168 districts of England and Wales the wheat crop is reckoned Over—an Average—and Below an average in 111, 53, and 4 cases respectively; and though barley and potatoes are both short as to produce per acre, the extent of the crop of each has been much greater than usual. The hay season was one of the most favourable we have had for many years, and a generally heavy crop was everywhere well harvested. The meteorological records of the year will present features of unusual interest to those who give their attention to such matters, and I should hope there are few gardeners who do not. Since the 20th of June, when the thermometer registered 80° in the sun, with a S.E. wind, the temperature was above the average up to the middle of December, with the exception of the first week in July, when we had a few cold nights and cloudy days; but on the 10th the real

warmth and brightness of summer broke upon us, and may be said to have continued till near the end of November; bedding plants remaining in bloom later than usual, the fall of the leaf being protracted, and many tender subjects that are generally expected to perish of frost, if left out after the middle of October, were green and vigorous on the 16th of December, in the neighbourhood of London.

The unusual warmth of the season caused the blooming and fruiting of many plants which usually refuse to accommodate themselves thoroughly to our climate. At a late meeting of the Linnæan Society, Professor Owen produced pods of the three-thorned acacia, which had ripened in his garden at Richmond; the previous instance on record of the fruiting of this shrub being that mentioned by Miller, which occurred in 1728. The *Chronicle* records the ripening of the nuts of two sorts of hickory, *Carya porcinæ*, and *C. obcordatæ;* the ripening of the crimson samaræ or keys of *Ailanthus glandulosus*, a deciduous tree of Chinese origin. At Kew and other places, *Koelreuteria paniculata*, a beautiful deciduous tree of the soapwort family, also from China, has produced its bladdery seed-vessels in abundance; catalpa trees, at Chiswick, came out loaded with pods; and in the Horticultural Society's garden, the levantine oak (*Quercus ægilops*) ripened abundance of acorns. Among the notes made of similar events within my own experience, I may mention the free blooming of *pyrus vestita*; the ripening of fruits on standard peaches (*Peche des Vignes*), in Mr. Rivers's nursery at Sawbridgeworth, the free blooming of the double white Hibiscus, and the fruiting of *Eugenia Ugni*, besides grapes, figs, and pomegranates ripened on open walls, of a quality such as we never before saw equalled under similar circumstances. Peaches have been gathered of two-and-a-half pounds weight; Pears of two pounds have been common. Mr. Clarke, the seedsman, of the Borough, lately exhibited a couple, one of which weighed two pounds fourteen ounces; and twelve Belle Angevine, exhibited by Mr. Solomon at Willis's Rooms, weighed twenty-five pounds.

Amongst the events of the year, the flower and fruit shows may be spoken of as having been successful beyond precedent. The new *locus* for such things at Sydenham has told favourably for gardening interests, and though the shareholders' committee estimated the profits of the three shows at only £500, it is to be hoped that better management in future may render such fêtes as productive to the company as they are acceptable to the public; and every enthusiast in horticulture, whether dealer or amateur, would regret the loss of such agreeable réunions, especially since they are celebrated in a spot where decorative gardening has been brought to its highest state of perfection for all popular purposes. At those three shows prizes to the amount of near £2,300 were distributed; *that* was the mistake. Let the honour of showing have preponderance over the temptation of prizes, and let the latter be wisely apportioned to merit of the most diverse kinds, and neither professional nor amateur cultivators will cease to regard the Crystal Palace as a place worthy of the best productions of their skill. In regard to shows generally, those of the *National*, the *Horticultural Society*, and the many local associations in various parts of the country, must be spoken of as having been unusually brilliant; and to crown the close of the season with a grand flourish, came the autumn fruit show at Willis's Rooms—an experiment

which proved so successful, that we hope for its periodical continuance in the centre of the metropolis. That show did more to exhibit the high position to which horticulture has attained in this country than any similar exhibition for many years past. Even in pears, those from the Continent were quite eclipsed by samples of home growth; and as to apples, we believe that, whether we regard the variety of sorts, or the general excellence of their condition, such a collection was never got together in this or any other country. The classified specimens of Messrs. Rivers and Paul were characterized by the high cultural and exhibitional attainments of those growers; and among the new sorts were many destined to enrich the orchards of posterity with valuable additions.

Grapes were particularly fine and abundant last season, and those at Willis's Rooms required, as puffing tradesmen say, "to be seen to be appreciated." The White Tokays from Trentham, the Muscats from Keele Hall, and Black Hamburghs from everywhere, were grapes indeed; and, as telling the story of the season truly, Mr. Beaton's black grapes, ripened on an open wall at Surbiton, were such as we cannot often expect to see; though the weather must not carry off his share of the eulogy as an experienced experimenter, and a master of the art he has so nobly laboured to improve.

Those said grapes bring us to consider for a moment what special additions have been made to our knowledge during the past year; and among the most important, Mr. Beaton's recent elucidations of the theory and practice of vine-pruning must be referred to. The question "how to prune a vine" has had its share of agitation, and, with all the perfections of modern grape culture, we have yet much to learn as to the fundamentals of this particular branch of horticulture. I shall, in the February number of the "Floral World," present a resume of Mr. Beaton's experiments and their results; and, for the present, content myself with saying that, as far as I can judge—and I have pruned a vine or two in my time—Donald Beaton has let more light into the vinery than either Hoare, or Knight, or Smith, or Lindley, or, indeed, all the writers and cultivators put together, have done ever before.

As one thing suggests another, so, again, it occurs to me that we have made great advances towards a knowledge of the causes and remedies of those two great horticultural calamities, the vine mildew and the potatoe blight. Endless are the suggested methods of prevention and cure, but the virtues of sulphur, in both cases, are coming to be acknowledged as pre-eminent. The Rev. W. J. Berkeley was the first to show how sulphur might be employed to check the potatoe disease, by using cut sets of large potatoes instead of whole sets of small ones, and dusting the moist parts so as to act on the interior of the pulp, instead of any external application. Numerous experiments have proved the efficacy of this practice, but it cannot yet be said with such success as to constitute sulphur a specific. Admitting its value, as proved, there is a still more effectual way of dealing with the enemy, by adopting a more rational routine culture—planting in autumn instead of spring, or at least no later than February—choosing sorts which ripen early, and which may be taken up before the late summer and autumn rains come on, which invariably precede the outbreak of the disease, and seem more closely connected with its origin

than either the forgotten *Aphis vastator* or the fungoid growths which the sulphur is intended to act upon. But the fact of the *mycelium* of fungi being present in almost all forms of the potatoe murrain, adds *a priori* weight to the experimental results attained by the Rev. Mr. Berkeley; and the more we enquire into the nature of diseases observed in other plants, and especially in the decay, and what is called *the wearing out* of many of our tree fruits, the more we shall find that the *mycelium* of fungi is the agency chargeable with the mischief; and the practical lesson to be learnt from this fact is, never to plant trees or shrubs on spots where others have perished, without first grubbing up the roots, removing the soil, and supplying its place with earth of a suitable nature, in which neither shrub nor tree has had root before.

The season opened with the grand debate on roses and rose catalogues, and it closes with a debate on another question of great importance to florists—namely, whether we are to break the chrysanthemum in autumn or in spring. With all the glory of the Stoke Newington, Colchester, and other shows of this noble flower, it seems we are to be beaten by a grower who saves four months of anxious labour, by starting in March instead of November. Mr. Scutt has broached this question in the *Chronicle*, and its issue will be attentively watched by all who take an interest in the finest exhibition subject in the whole queendom of Flora. Mr. Scutt's Drin Drin carried 1796 blooms, though put in as a cutting in the beginning of March—a result not easily obtained on the orthodox London method, even with old stools. This is a point worthy of attention.

A hundred other matters suggest themselves for remark, but space forbids. Let us rejoice that the Horticultural Society, many as have been its sins and failings, is once more acquiring strength and popularity. In the hands of Mr. McEwen, the garden has already changed its face, and the earnest labours of the council have met with a warm response from the lovers of horticulture everywhere. May it go on and prosper; and may all jealousies, bickerings, personal quibbles, and animosities, speedily be extinguished out of the whole "Floral World," which draws its life from the most beautiful and useful objects in creation, is the sincere wish of

AN OLD GARDENER.

NOTES OF THE MONTH.

WHEN the Council of the Horticultural Society issued the late circular, inviting the co-operation of the lovers of horticulture in the endeavour to re-establish the Society on a healthy basis, so sudden and great an influx of fellows could not have been anticipated by the most sanguine of its members. In that address, the Council stated that above 20,000*l.* had been distributed by it in prizes alone, at its several exhibitions; 40,000*l.* had been laid out on the garden at Chiswick, which was commenced in 1822; and, in its recent difficulties, no less than 3,000*l.* have been subscribed by fellows and their friends to keep the Society on its feet. Since September, 1856, 197 new fellows have been elected, and instead of the former entrance fee of 6*l.* 6s., and annual subscription of 4*l.* 4s., the entrance fee has been abolished, and an additional class of subscribers created, at 2*l.* 2s. per annum, to whom fewer privileges are awarded.

The address was not issued in vain, for at the meeting on the 1st of December last, no fewer than 108 new fellows were elected, including five ladies, sixteen persons of title, a general, four captains, four reverends, sixty-six private gentlemen, three nurserymen, namely, Mr. Waterer, of Bagshot; Mr. Toogood, of Arundel, Sussex; and Mr. J. Watts, of Old Kent-road; and three gardeners, namely, Mr. Broome, of the Temple Gardens; Mr. Francis, of Adelaide, New South Wales; and Mr. Barnes, of Bicton. On the 15th, another batch was passed, and the Society will begin the new year with an extensive fellowship to support it.

At the meeting of the Linnæan Society, held November 19, Lady Smith presented the whole of the scientific correspondence of the late Sir J. E. Smith, arranged in eighteen volumes. Mr. John Hogg read a paper on "Four Varieties of British Plants;" they consisted of a white-flowered variety of the common corn poppy (Papaver rhæas), a luxuriant form of Astragalus Hypoglottis, a curious montrosity of the major plantain, in which the lower flowers were converted into spikelets, forming a pyramidal inflorescence, and some variations of the common arbutus. Such things are, however, by no means uncommon. We have seen wayside thistles covered with semi-foliated bulbs all along the stems; cabbages very commonly produce buds, and even small complete hearts, on the midribs of the large leaves; double cucumbers are common, and last season we had on a common pumpkin, of unusual luxuriance, as many as eight complete fruits, all consolidated together into an enormous clump, and united at their bases. Last summer a plant of the bride Fuschia presented us with numbers of flowers, with six and seven sepals each, and a Kingsbury Pet geranium came quite double on one truss. Nature is more given to such freaks than most of us are aware of, because we do not observe sufficiently, but the observation of them is the key to many a valuable addition to our list of ornamental and useful plants.

The Pomological Society increases in usefulness and activity. At a meeting held at St. Martin's Hall, on the 3rd of December, a list of sixteen prizes was determined on, including three for seedling grapes, and one for the "best seedling grape, to ripen in the open air, and which shall be superior to those already in cultivation." Mr. Bohn gave 2*l.* for the best seedling late strawberry, not in general commerce; Mr. Rivers 2*l.* for the best seedling early peach; Robert Hanbury, Esq., 2*l.* for the best seedling early apricot, and a like sum for the best late apricot; and the editors of the *Cottage Gardener* 2*l.* for the best seedling late peach. The sixteen prizes amount altogether to 28*l.* Those to be awarded for dessert pears—namely, one of 2*l.*, by A. Scrutton, Esq., for the best six varieties, and one of 1*l*, by R. Hanbury, Esq., for the best early pear—will be determined at a meeting to be held on the 4th of February next. Two additional prizes have since been offered, viz., 1*l.* for the best six of the Salway Peach; and 10s. for the best ten of Cox's Orange Pippin, both by Mr. C. Turner, of Slough.

Among the fruits exhibited were some seedling pears from Mr. Stephens, Chingford, Essex; one of them resembling the *Baronne de Mello*, was highly commended as being much superior to that variety. Mr. Matthews, of Clapham, exhibited a seedling pear, called *Matthews' Eliza*, one of the Easter Beurré class, a large, handsome, desirable fruit, of a lively, piquant flavour. Having ripened well on a standard, it is an undoubted acquisition. Mr. Laxton, the enthusiastic cultivator of Stamford, sent his fine apple, known as the *Stamford Pippin*, a golden, glossy, richly flavoured, and juicy fruit, which has now proved itself, having been exhibited before, as a valuable addition to this class of apples. Mr. Rivers sent several little known varieties of pears, among them Princess Charlotte, one of the Passe Colmar race; *Beurre gris d'hiver nouveau*, a large melting pear, of high flavour and rich aroma; and *Vicar of Winkfield*, a sort which figured largely at Willis's Rooms, and was now in fine condition as to sweetness and aroma, a result only to be obtained with this sort in such a summer as the past.

The grand seasonal show of the Smithfield Club, which took place at Baker's Rooms, was, as usual, brilliantly successful. In the implement and root department upwards of 300 exhibitors found room, by mutual squeezing, for various examples of improved agricultural machinery and implements. Among the roots was a collection by Messrs. Lawson, consisting of extraordinary Belgian carrots, Kohl Rabi, swede turnips, and similar productions, selected to illustrate the capabilities of pure sorts, without special nursing for exhibition purposes. Messrs. Sutton, of Reading, showed mangel wurzels of 40lbs. weight, some roots of the same, from Mr. Grove, of Great Baddo, Essex, measured three feet in length; Gibbs and Co. had superb chicory roots, orange jelly turnips, and monster Kohl Rabi; Page, of Southampton, mangel wurzels of 44lbs.; nor must we forget the giant wheat of Major Quentin, of Waterford, who has sold the whole of his crop of seven quarters to the acre, at three guineas a bushel for seed. Ransome and Sims came out strong in horse-hoes and root-pulpers; Burgess and Key exhibited several high class gardening as well as agricultural implements, and there were ploughs, threshing machines, and clod crushers, in greater number than we need specify. Burgess and Key's digging forks and draining tools, and Sigma's pretty hoes and dibbles, arrested the attention of many a knight of the blue apron.

We hear from many quarters, of spirited preparations for the spring shows. Hyacinths, forced shrubs and roses, cinerarias, and other early subjects, are expected to be better shown than they have been for many years past. In hyacinths and bulbs in pots, generally, there is certainly room for improvement, and this class of flowers is much neglected by amateurs.

The Horticultural Society will have a grand Spring Exhibition on the 6th of April. There are thirty-five classes: twenty-three for flowers, and twelve for fruits. Among the first are four classes for hyacinths, two for tulips, three for narcissi, three for roses, and one of three prizes, namely, 4*l*., 3*l*., and 2*l*., for six plants of fine and remarkable foliage, in which variegated plants will be admissible. There are three prizes, of 2*l*., 1*l*., and 10s., for six distinct annuals in pots; three of the same amount, for cinerarias in sixes, correctly named, and three of the same amounts for auriculas in twelves.

The folks 'yond the Tweed are looking forward to the 23rd of March, when an exhibition of hyacinths and other spring flowers and shrubs will take place at the Music Hall, George-street, Edinburgh. Early vegetables, horticultural implements, &c., will form a feature of the exhibition, as on former occasions. Intending competitors may obtain schedules on application to Mr. Stark, of Castle-street, or Mr. Lamont, of Fettes-road, Edinburgh.

PLATYLOMA GERANIIFOLIA.

The coloured illustration has been kindly furnished by the proprietors of *Lowe's British and Exotic Ferns*, the most beautifully produced* of any of the works recently published on the subject. It is not only the fullest and most accurate treatise on ferns extant, but it is also the cheapest, each shilling part containing four highly finished fern portraits, besides letterpress descriptions. Of the fern here figured, we quote a portion of Mr. Lowe's description:—

"An interesting dwarf species, which has been looked upon as a *Pteris* by most botanists, but placed in the present family by Mr. J. Smith. It appears to be rather a delicate species to cultivate, yet is not difficult to raise from spores. Young plants in the seed-pans will bear fertile fronds. An evergreen stove fern, native of Brazil, India, and the island of Java. Introduced into this country in 1816, according to Kunze; and into the Royal Gardens, Kew, in 1838.

* *A Natural History of Ferns, British and Exotic*, by E. J. Lowe, Esq., F.R.A.S., F.G.S., &c., with coloured illustrations. Vols. 1, 2, and 3. Price 14s. each. Royal 8vo. Groombridge and Sons.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

FERN.

Platyloma Geraniifolia.

PLANTING OF A FERN CASE.

BY SHIRLEY HIBBERD.

Having been kindly invited to become a contributor to the "Floral World," I open my budget with an account of a Fern Vase, as a subject peculiarly interesting at a season of the year when in-door horticulture has peculiar attractions. There is, perhaps, no department of domestic plant-culture more in need of elucidation, than that of Fern growing, and the use of Wardian cases, for the *Filices* are daily growing more popular; every lover of plants gives some attention to them; they figure largely at flower shows, both as objects of competition, and as means of decorating the tables, and the day may not be far distant, when societies, designed expressly to encourage the culture of Ferns, will be as successful, and their shows as attractive, as are those devoted to other special classes of subjects—as the dahlia, or chrysanthemum for instance. The engraving which accompanies this article, represents a Fern Vase, which was fitted expressly for experimental purposes, and among the large number of similiar contrivances which have furnished me with Fern experiences, not one has proved so successful as this, either for beauty of effect, the flourishing condition of the plants, or its comparative cheapness, all things considered.

The vase is an example of a material, known as "Ransome's Patent Siliceous Stone," the invention of which has set at rest for ever, the long vexed question of a substitute for stone. Strictly speaking, this is not a substitute at all, but a *real* stone *artificially* made; and as an example of the application of science to the amenities of life, it takes one of the highest places among the inventions of this present century. It may not be known to every reader of these pages, that many famous kinds of building stone, are, by their constitution, utterly unfit for architectural purposes, where durability is required. The Bath-stone, of which many of our finest buildings are constructed, proves itself unequal to the attacks of time. The alternating temperatures of our climate, and, especially, the rapid changes from damp to frost, and then to drying winds during winter, steadily operate to its disintegration; the delicate sculptured tracings lose their sharpness, the whole surface gets abraded, and, in time, "the beauty of the fashion of it perisheth," and Nature asserts her ancient supremacy over Art. If the truth of this is made manifest in the case of such buildings as Westminster Abbey, or even in the fine Portland stone used in the construction of St. Paul's, in each of which, decisive evidences of decay have long been visible, how much more may we expect ambitious works to yield to those atmospheric influences, which not even granite is utterly proof against. Now, if we were to bring an artificially compounded stone into competition with real Portland, or Bath, or Cragleith, or Darley Wold stone, we should submit it to the severest possible test; and, strange to say, the invention of Ransome bears such a test with impunity, and, for many reasons, may be described *as superior* to any natural stone ever used for decorative purposes

Let it be understood that the chief cause of the decay of masonry is the presence in the material of certain ingredients on which the atmosphere has a decided influence. Take a stone composed chiefly of silica and lime, expose it to the weather, and the acid, soot, and the natural moisture of the atmosphere, will soon crumble it to powder, because, of all earthy substances, those of a calcareous origin have the most powerful affinities for the principles presented to them by the atmosphere. I remember, some fifteen years ago, seeing, for the first time, the picturesque cliffs of magnesian limestone, which confront the sea, along the coast of Northumberland, and which, at Sunderland, yield large plates of *flexible* stone, which bend as freely as whalebone, and which are even difficult to break, on account of their toughness while kept damp.

That very stone is hard as adamant, where it lies concealed from the atmosphere, in the seclusion of superincumbent strata, but in the exterior facing of the cliff it crumbles like touchwood, so effectually does the atmosphere operate on its *mixed* ingredients. In the same way the Dover cliffs, and, indeed, the rocks generally, on our east coast, of which the basis is, in most cases calcareous, are the most perishable of any with which we are acquainted. On the other hand, the most durable natural stones, are those which are composed wholly, or nearly so, of silica, the particles being held together by a natural siliceous cement, and altogether free from marl or limestone. To succeed, therefore, in any imitation of these, or, as in the case of Ransome's imperishable compound, to surpass them, a perfectly homogenous material must be produced, and one, too, that can be handled first in a loose form, so as to be moulded to any required design, otherwise the sculptor's chisel would have to be called into requisition, and the principal advantage would be lost—for it is not the mere material so much as its capability of being made ornamental at a low rate of cost, that renders a perfect substitute for stone so desirable.

Now, though Mr. Ransome has spent twelve years of his life in maturing the idea which first called him into this peculiar field of experiment, the result may, in its essence, be very briefly told. His first hint of the necessity of some such material as that which he has succeeded in producing, was obtained from noticing a workman renewing the surface of a mill-stone, and he was struck by the apparent absurdity of having to chip away, not only the soft parts of the stone, but also the hard silicious prominences which constituted the real efficient portion of the surface. Here was seen the main difficulty, and also the mode of encountering it. The perishability of stone is chiefly due to its heterogenous character, the atmosphere acting variably on its several ingredients, and thus even its most lasting elements are destroyed by their association with materials of a perishable nature. It occured to Mr. Ransome, that if he could re-unite the particles of silex, on which the atmosphere has no effect, and obtain a cement to hold them together, also of silex, one uniform structure would prevail throughout, and the material would present none of those weak points to the atmosphere which most natural stones do, through the presence in them of ingredients that may be chemically acted on by moisture, and such other active agents as are always present in the atmosphere.

It might interest our readers to describe the several steps pursued to the attainment of this end, but our limited space forbids, and it must suffice to say, that a method was at last discovered of uniting silica by means of silica, the basis of the materials being siliceous sand and powdered flint, and the cement an alkaline solution of flint. After the usual processes of working in the form of a paste, and then moulding to the artist's design, the alkaline solution of silica, which holds the loose particles together, till the last touch of the artist has been given to the plastic mass, is, by exposure to a high temperature, rendered semi-vitreous, and insoluble; and the whole mass is held together by a glassy silicate on which neither air nor moisture can produce the least effect.

Now, what most concerns the gardener as to this invention, is its durability and the persistency with which it retains its character under exposure to the weather—a quality which distinguishes it as much from every other substitute for stone, as its crystalline beauty, its bright tone and colour, and, as worked out by the Company, the splendid forms of high art in which it is produced. If Science has brought her highest appliances to bear on its actual production, Art, her twin sister, has nobly co-operated, and, for purposes of garden embellishment, we never before had such a choice of classic patterns, or so many new appliances of stone, as Mr. Ransome has placed within our reach, at prices no higher than we used to pay for inferior cements.

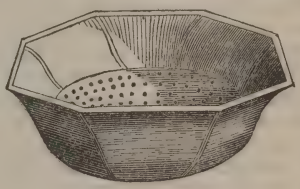
The "Jardinet," which I had the pleasure of describing lately in the "*Cottage Gardener*," is an example of an original contrivance as well as of

a new and splendid material, and a specimen of floral sculpture. The garden vases, fountains, and other decorative works which Mr. Ransome has produced, are all characterised by exquisite design, and, as they keep their colour and sharpness of outline under all circumstances, the Patent Siliceous stone must be accepted as a noble contribution to ornamental gardening, realising, in all its details, the splendours of the Italian style, but without necessitating, as that style has done hitherto, a princely expenditure. Of the appliances of the invention to the decorative parts of buildings, we have less occasion to speak, though houses and gardens can hardly be separated when we treat of artistic embellishments, and as to terrace ornamentation, here is the one thing needful—cheap and everlasting sculpture, which will hold its beauty when the family name is forgotten, and the less perishable parts of the mansion and grounds—real stone products included—are hastening to decay.

I have chosen the Fern Vase as an illustration of this paper, for the double purpose of adding my tribute to the many which have been given by Professors Faraday, De la Beche, Ansted, Henry, Hunt, and Wheatstone, the *Times* newspaper, the Institute of Civil Engineers, and numerous other high authorities, as to its general excellence, beauty, imperishability, and cheapness; and now let us consider the example before us as a plant case.

This vase measures across the top from edge to edge 22½ inches, the tazza is 6½ inches deep, and fits on a pivot to the pedestal, on which it turns freely, but as the action of turning is not an easy one when the vase has the weight of a glass frame and plants upon it, I have fitted two perforated disks of thin marble, one to the pedestal, and one to the vase, by means of cement, and as the polished surfaces of the disks meet, the act of turning it is easily accomplished. From the ground to the rim of the vase, is 2 feet 8 inches; but an additional slab which I have placed beneath it, raises the entire height without the glass frame, to 3 feet.

In fitting this beautiful vase for a Wardian case, I have strictly adhered to those principle of management on which I have laid so much stress in "Rustic Adornments," namely, efficient drainage, and free ventilation, the treating them, in fact, as greenhouses on a small scale, in opposition to Mr. Ward's plan of excluding the outer air, on the self-sustaining theory, about which so much nonsense has been said and written. To suppose ferns to be capable, any more than other plants, of enduring confinement in the midst of their own exhalations, is to suppose an impossibility—as the repeated failures and mistakes made in the management of fern cases, prove abundantly. Having in view easy access to the plants, and the supply of air to both roots and foliage, the fittings are made as follows: First, for the soil a zinc pan is constructed; it is oc-



tagonal in shape, with a circular bottom, perforated throughout, and this fits so loosely in the vase, that there is a free space for circulation of air all round it, between the stone and the zinc, the pan resting on its turned edges, and not quite filling the space it occupies; it measures 1 ft. 5½ inches across, and 6 inches deep. The octagonal frame-work is also of zinc, and fits closely on the edge of the soil pan, one side being hung on hinges, with a catch, as a door; it is glazed with three-sixteenths crown glass, and between it and the lantern, and again around the top of the latter, the squares of glass are separated by a continuous band of perforated zinc, so that the external air has free admission, and the vapour within an easy escape. From the base of the case, to the first ventilator, is a height of 2 feet, and from that point again, to the top of the lantern, 10 inches, giving a total of 34

inches. Compared with some common fern shades which I have in use beside the vase, the advantage of ventilation in the latter is evidenced in the glass being at all times undimmed, even after watering, and if it should be neglected for awhile, there is none of the havoc visible, which damp is sure to effect under a neglected bell glass, or any other air-tight contrivance; and though the plants require watering more frequently, about once a month, is enough in winter, and once a week, in the height of summer. The top of the lantern inside is furnished with four hooks, for suspending ferns in small pots, bark, or cocoa-nut shells.

I planted this case last May, with a few select exotic ferns, and their rapid growth, and present (December) healthy appearance, surpass any example I have ever had, on the *close* method of treating Wardian cases; indeed, if it had not been treated throughout, as a miniature greenhouse, one half of them must by this time have perished, because, at least, four delicate specimens were introduced, which will neither bear excess of moisture, or dryness, and to which a full supply of fresh air is indispensable, not only for health, but for life. In planting, a layer of small cinders was first laid over the perforated bottom of the soil pan, and upon these, two inches of small crocks and rough charcoal, of the size of hazel-nuts. Upon this was placed a thin layer of rough turfy peat, to prevent the finer compost from getting down among the drainage; and then the compost for the ferns was worked in together with a few pieces of rock, so as to leave the surface after planting, in the form of a hillock, rising in the centre some three inches higher than the sides. The compost was made of turfy peat, well broken up, about four parts; silver sand, three parts; broken charcoal, of the size of peas and hazel nuts, one part; leaf mould one part; and a little very old powdery dung and rotten wood—but, turfy peat, charcoal, and silver sand, would always do without particular need for the other ingredients As a matter of course, the compost was *not sifted*, but well worked with the hand; and when ready, was of a free gritty character, and would scarcely soil the hand when moderately moist. Compost which becomes pasty when wetted, is quite unfit for growing ferns.

The following Ferns and Lycopods were planted:—In the centre, *Goniophlebium loriceum*, a fast growing, and almost hardy fern, closely allied to the Polypodies; it has curious snake-like creeping root-stems, and its fronds rise from a central crown, and arch over on all sides very gracefully. As to the height, it is most accommodating, for though it rises eighteen or twenty inches high, it may be reduced by a clip of the scissors, without at all interfering with its beauty. It spreads fast, by means of its root-stems, and my case is now full of young plants, which will require to be removed in spring. Around this are *Lastrea glabella*, very neat and free growing; *Campyloneurum angustifolium*, (*Cyrtophlebium angustifolium*, of Sims' catalogue,) a very distinct and curious fern, with rich dark green undivided fronds of a hard texture; *Davallia dissecta*, a relative of the hare's foot fern, but of more delicate growth; *Aneimidictyon phyllitidis*, which has fertile stems springing from the junction of the lowest pair of the divisions of its leaf-like fronds; *Pteris crenata*, the fertile fronds rising a foot high, in very regular tail-like divisions; and lastly, the scarce and beautiful *Cheilanthes farinosa*, a better silver fern for Wardian cases than any of the *Gymnogrammas*, and in its curious beauty unsurpassed; but none of its tribe will bear either excessive dryness or excessive moisture, hence, on the *close-case* plan, they perish in a week or two. The soil is surfaced with *Selaginella apoda*, and *S. variabilis*, which have spread freely, and the fragrant *Thymus corsica*, which certainly has not thriven, though one or two sprays are left, and may spread next spring.

In the lantern above, are four very choice subjects: *Camptosorus rhyzophyllus* spreads its unique and hardy fronds over a minute case of bark; *Asplenium flabellifolium* riots in a bunch of moss, and multiplies rapidly by forming young plants, at the

P.W.JUSTINE. DEL.

extremities of its dangling fronds; *Adiantum setulosum*, is in a perforated cocoa-nut shell, and is pushing new crowns through the holes all over it; and the rather tender *Nothochlæna tenera* thrives in a similar way, but abhors much moisture.

As to general management, the case has the temperature of an ordinary room, and so long as it is not actually touched with frost, there is nothing in it that will take harm during winter. The soil is kept moderately moist in summer, and dryish at other times; the plants enjoy an occasional syringing, and about once a month, the case is removed, the plants trimmed up, and thinned, and scale, if it appears, removed by means of the finger nail: the use of turps has never been required.

I might, in the space I have occupied, have treated the subject more extensively in a *general way*, but to describe what *has been* done, is better always than what *may be* done.

To complete the details, I may as well mention, that Messrs. Treggon, of Jewin-street, fitted the case to the vase and met my views admirably; Mr. Sim supplied me the plants, and the cost of the whole was as follows:—Vase, £4 4s.; glass case and two soil pans, £4 10s.; plants, £2 3s 6d.; base added since, to prevent the damp from descending the pedestal to the carpet, 10s.; total, £12 7s.6d.; which, I consider a low figure for so beautiful and interesting an object, especially since the plants increase rapidly, and the construction itself is of the most enduring nature.

THE CINERARIA.

As a florist's flower, the Cineraria enjoys and deserves a high place; its dazzling fulgid hues, and its free bold blooming at a season when the sun

"Scarce shines through ether the dejected day,"

renders it alike welcome as a greenhouse and window flower, and as a notable contribution to the spring shows. To grow it to perfection is a task within compass of the poorest florist's means, for it literally detests heat, and the more hardy it can be made by a judicious course of culture, the more bravely does it throw up its glittering trusses of cheerful bloom.

To grow good specimen plants for exhibition, the compost should consist of two parts loam from rotted turves, one part thoroughly decayed cow dung, one part fibrous peat, one part leaf mould, and sufficient sharp sand and small potsherds to make the whole light and porous. To keep established sorts, the plants must be grown from offsets, and if the plants are cut down after blooming, and repotted into larger pots, or turned out at once into the open border, an abundance may be obtained; but many growers prefer cuttings taken off when the young shoots from near the collar are two inches long; these are rooted in a compost of powdery peat and silver sand, and then potted off into three-inch pots, in light and moderately rich compost, and from that time forward, they are to be shifted on, as fast as they fill their pots with roots, to encourage them to make broad and ample foliage and stout stems. They ought to be in eight-inch pots before they begin to show their flower stems. To winter the young stock, a cold frame is preferable to a greenhouse, but they must be well secured against frost, with a substantial matting, and well ventilated during mild weather. About January is the time for the last shift, and after this they may be brought into the greenhouse to bloom. In preparing them for exhibition, it is next to impossible to avoid the sticks and ties to open out the heads; this should be done so as to spread them well over the pot, to prevent crowding in the centre. The sticks and ties should all be removed a day or two before the show, and the plants ought to have sufficient robustness to bear their trusses firmly.

The Cineraria is an excellent subject for those fond of raising seedling collections. Seed should be taken only from those plants which possess the requisites of fine form and colour: as soon as gathered, it should be sown in shallow pans, and comes all the better for a little bottom heat; the plants must be pricked out into similar pans, as soon as they have three leaves each, and must be kept rather close for a few days to recover the moving. As soon as they begin to crowd each other in the pans, pot them singly in the compost just described, and thereafter treat them the same as described for offsets.

TWELVE FINE CINERARIAS FOR EXHIBITION.

Asmodeus, (Turner) bluish purple, dwarf, fine habit.

Brilliant, (Lidgard) white, with azure edges, dark disk.

Baronness Rothschild, white violet edge, very full.

Charles Dickens, purplish puce, very dwarf.

Emperor of the French, (Turner) white, with rosy crimson margin, dark disk, fine form, an improved Optimum.

Earl of Clarendon, (Turner) deep violet, with red ring round a dark disk, good substance, and dwarf.

Excelsior, (Turner) an improved Scottish Chieftain.

Kate Kearney, (Henderson) large white, dwarf, strong grower.

Lablache, (Henderson) fine deep blue, dwarf.

Loveliness, bright rosy flake, fine habit

Sir Charles Napier, (Turner) intense blue, dwarf, fine petals.

Rosy Morn, (Henderson) rosy crimson, light centre and disk.

HARDY EVERGREEN FLOWERING SHRUBS.

It is a common cause for regret, with those who entertain ambitious views of ornamental gardening, that in the formation of shrubberies, and in the general planting of evergreens, in borders and forecourts, the resources of gardening are, generally speaking, so little understood. Everywhere the old laurels, and aucubas, and tree-box, and variegated hollies are used abundantly, and though they are really noble objects when judiciously grouped and skilfully treated, the extensive choice of high-class ornamental shrubs now available for similar purposes of embellishment, seem to be scarcely known beyond the nurseries where they are raised, and we see little out of the ordinary round of old-fashioned evergreens, except in the grounds where gardening is pursued with all the ardour and intelligence due to it, as one of the "Fine Arts." So many new and beautiful shrubs have been introduced of late years, that it is time this department of amateur gardening underwent a complete reform. We would not abolish our good old friends, but rather render them more effective and acceptable, by blending with them subjects of higher pretensions as to gaiety —for if we get all the requisites of hardiness, free growth, and dense evergreen foliage, with a seasonal show of cheerful bloom into the bargain, we shall have made a grand step towards the improvement of the shrubbery itself, and all other garden scenes in which evergreens play an important part. With this end in view, we propose treating the subject of "flowering shrubs" specifically; and, as a matter of course, we give the term its popular meaning, for as all shrubs flower in some way or other, we shall confine our attention to those which produce blossoms conspicuous for beauty, and which are capable of impressing on the scenes in which they may be placed, distinct features of attractivenes. This month we may make a good beginning with

KALMIA LATIFOLIA.

This is, perhaps, the most beautiful hardy flowering shrub we possess, though there is no such thing as an ugly Kalmia. This genus belongs to

the noble family of *Rhodoreæ*, in which are grouped, the rhododendron, the azalea, Kalmia, menziesia, and some other genera, of similar botanical structure—showy and noble things. There are not many species of Kalmia in cultivation; K. angustifolia nana, and its variety rubra; K. glauca, and K. latifolia, include all that are generally to be found in nurseries; the last named, is certainly the finest of its family. The soil in which the Kalmia delights, is one compounded of peat and sandy loam, and a similar course of treatment to that adopted with the rhododendron and azalea, is most suited to its habits. It is, however, a mistake to suppose that peat is essentially necessary with these American plants. Sound yellow loam, enriched with decayed dung and rotted turf, or leaf-mould, will grow any of them to perfection, but the Kalmia is more partial to sand than most others. Messrs. Lane, of Great Berkhampstead, grow this class of plants on the yellow loam of Berkhampstead Common, with the least possible preparation as to soil. The grass is simply dug in and the trees planted, and in the fresh vegetable fibre they root freely, and move remarkably well, and have a beautifully healthy appearance.

The Kalmia may be propagated with moderate certainty from cuttings of young shoots, inserted in sandy peat, under handlights; or, by layers at the end of summer. When raised from seed, it should be sown in sandy peat, and kept close in a frame till the seedlings are up, and they should then be gradually hardened by exposure to the air, and pricked off when large enough to handle. The Kalmia is a good subject for pot culture, and forces well, and hence is an acceptable addition to the shrubs grown for the conservatory. In the open borders it is perfectly hardy, and blooms in June, producing a magnificent effect when well grouped in masses, and associated with subjects which, at that gay season, lend it the relief of contrasted colour. Among the varieties of latifolia, Cattell's *major splendens* is one of the most charming, the flowers almost flat, and as large as a penny-piece. At the June show at the Crystal Palace last year, Mr. Vietch exhibited a splendid hybrid called *picta*. This has about a dozen crimson spots in a circle inside the flower, all marked as regularly as if artificially painted. We shall not soon forget our admiration of it, or of Rhododendron javanicum, as shown by Mr. Lane, or Mr. Vietch's Princess Royal rhododendron, which is a cross from the splendid and rare javanicum. As Time turns his great wheel, let us hope to find fresh pleasures of the sort in the summer that will soon burst upon us.

E. J. L.

BOITE A HOUPPE;

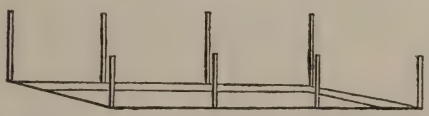
OR, SULPHUR DUSTER.

This is an ingenious contrivance, introduced by Messrs. Burgess and Key, the well-known horticultural implement makers, of Newgate-street, London.

It is a cylindrical tin box (boite), terminating in a perforated orifice, in which is inserted a tuft (houppe) of wool. When charged with sulphur, it is invaluable for dusting vines, melons, and other plants, attacked with mildew or red spider, distributing the sulphur in an impalpable powder, and most effectually "settling" such pests. The pepper-box instrument, hitherto in use, caused much waste, and distributed so freely as to be injurious, but this simple instrument performs its work to perfection. As it costs but half-a-crown, no possessor of a greenhouse should be without it. We have tried it, and found the sulphur to escape from it in the form of a light cloud, which reached every crevice of bark and foilage, and, if mounted on a rod, the dusting of vines on rafters, and plants on walls, is easily accomplished. It may be used for distributing lime in the same way.

CHEAP PRESERVATIVE PIT FOR AMATEURS.

THERE are few amateurs who can afford to erect as many plant-houses as they really require, and efficient substitutes are always in request. Indeed, at first-class establishments, such as Shrubland, Frogmore, and Trentham, many *make-shifts* are adopted to assist in relieving the seasonal pressure upon the regular permanent structures. Over-crowding in winter is the frequent source of failure and disappointment, and the anxiety to preserve bedding and other stock, where the available space is already as closely occupied as it should be, leads to repeated vexations, and anything in the way of a plant-house, which an amateur may construct himself, and which will involve but a trifling outlay, must prove acceptable. At this time of year, it is customary to see lofts, garrets, and sitting-room windows all crowded with pots containing plants, for which there is no room to be found in the greenhouse or the pit, and many assiduous gardeners, who do not enjoy the luxury of a glass structure of any kind, would gladly adopt some simple and cheap plan of preserving plants, to get rid of the dirt, and confusion, and trouble, and we may add, the numerous losses that occur towards February, where there is no regular and uniform system pursued.



It is to assist such that we now describe a method of constructing a cold pit, which combines practical utility with the utmost simplicity, and is, perhaps, the cheapest form of a plant-house ever adopted. The materials necessary are some good larch piles, some rough planking, sashes of oiled calico or glass, and a good stock of turf, all easily procurable, and the last generally to be had on the spot. Mark out the place for the pit, choosing a dry slope facing the south, if possible, for damp is a greater enemy than frost to all unheated structures. For a substantial working pit of good capacity the following inside measurements are recommended, twelve feet long, five feet wide, three feet deep at the back, two feet in the front. Having marked out the ground, dig it out to a depth of twelve inches, so that the inside of the pit will be that depth below the level of the ground outside; then drive in short piles at the four corners, and attach a rough plank along the edge of the excavation all round, against which to lay the first layer of turves. Then, dividing the twelve feet space into three equal parts, drive in four other stout piles for the sash pieces to rest on, and then begin to pile the turves; these are to form four solid walls, to be laid down level with the ground outside, neatly built up, beginning by laying them close to the rough planking round the pit till level with the top of the piles; if the walls are six inches thick, they have sufficient solidity, but they may be eight or nine inches with advantage. When these are completed, trim them off neatly where they require it, observing that the summits should slope a little downward, to throw off rain, and prevent any trickling into the pit, and also let the outside be as regular as possible, that wet may not lodge anywhere. A labourer accustomed to the handling of turf, would complete this part of the job in a few hours, and finish it off as neatly as a brick-built wall. Then, for the sashes to rest on, nail a strip of board of sufficient width to lap over the turf to carry off rain, and fit three of the ordinary three and a-half feet sashes, well painted and glazed, and your pit is complete.

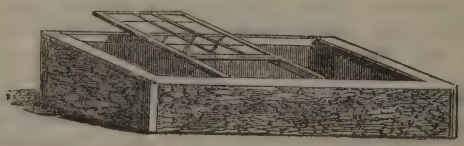
If the expense of glass sashes is an object, a substitute may be found in oiled calico, and any one handy in the use of a saw, may make three frames to fit with but a little trouble. Use clean pine, the sides two inches, the ends three inches, and each one and a quarter inch thick, and a little longer than the pit to carry off rain. Up the middle

of each sash, run a strip of deal an inch wide, and then cover them loosely on the *under* side with fine calico, or tiffany, merely tacking the calico along the edge to keep it temporarily in its place. Then, to convert the calico into glass, make the following preparation: pale linseed oil a pint and a half; sugar of lead, half an ounce; white resin, two ounces; grind the sugar of lead with a little of the oil into a smooth paste, then add the remainder of the oil and the resin, and melt the whole in an iron pot over the fire, stirring it the while to incorporate the ingredients thoroughly. Apply while hot to the calico with a large brush, and leave it till the following day, and then tack the calico tightly, still on the under side of the frames, and they are ready for use. A second coat of the preparation may be given the day after the first, but it is not essential.

To finish the pit off inside, a little extra dressing may be given. Set slates upon end between the piles, or nail some laths across from pile to pile on the inside, and fill up between the slates or laths, and the turves, with fine coal-ashes worked in hard with a stick, this will give a neat finish to the walls inside, and besides improving their appearance will render them still more impervious to frost, and help to keep out slugs and worms. To complete the pit for the reception of plants, make a bed of clean sifted coal ashes inside to plunge the pots in. In place of entirely filling the pit with ashes, one or two divisions might be appropriated to a bed of peat, and in autumn an immense number of cutings of geraniums, verbenas, calceolarias, &c., might be put in and left to winter there without need of pots at all, and in a severe winter the young plants so rooted in a bed of poor soil would be much safer against frost than if in pots, even though plunged to the rim, besides the saving of pots, and the increased number of cuttings the pit would afford room for on such a plan. During severe weather thatched hurdles would be the best covering, and over calico frames, with the calico strained on the under side, there would be no risk of tearing in putting the hurdles on or off.

Pits of this kind are not only valuable in winter for preservative purposes, but in spring, when cleared out, they would be useful for raising annuals and early vegetable crops for planting out. Two feet well-worked dung, with six inches of mould on the top, would make hot-beds of them at once, and during the whole year round they could be kept in active use, and if well made at first would last a life time. They would also serve for hardening off young stock, preparatory to planting out, and for striking cuttings of all kinds.

G. T.



PROFITABLE GARDENING.

CHAPTER I.—PLANNING AND LAYING OUT.

To begin at the beginning, how is the kitchen garden to be planned? It is quite an easy matter to plan gardens on paper, but such ideal plans are of little use to readers, beyond conveying an idea of just proportions, and essential conditions; in most cases it is quite impossible to adapt them to any special plot of ground, because every garden has a shape and position peculiar to itself, but we can do something by showing what are the conditions to be secured in every case; and here let us first remark on the general scheme of a kitchen and fruit garden, apart altogether from any special application of it.

A flat surface is preferable for most ordinary crops, but slopes may be made very advantageous for hastening or retarding such things as are prized at particular seasons of the year. A slope of about fifteen degrees to the south, or east, is far preferable to a slope to the north. The sun is the grand agent in bringing vegetable life to perfection, and without a free current of air, and a moderate exposure to sunshine, winter and summer, the difficulties of gardening will be much increased. If your ground has no shelter on the north side, see what you can effect to produce one. A wall on that side, will give you a south-border for trained fruits and seed-beds on gentle slopes; these would be favourably situated for early sowings, and some crops that are wanted quickly in the spring. A slightly elevated and sloping piece of land, facing the east, will be admirably situated for the first crop of strawberries, and, indeed, of many other things, for the hoar-frost will be melted there an hour before it disappears from other parts of the ground. An abundance of trees and shrubs in the immediate vicinity of a garden, is decidedly injurious, they intercept the sun's rays, and prevent that free circulation of air, which in spring and autumn are so necessary to dispel damp. To be well placed in all respects, a garden should have efficient shelter on the north and east sides; the south-west is another quarter against which some shelter is desirable, from the violent summer storms which frequently do much mischief with hail and hurricanes. Very high and very low positions are equally unfavourable; in the first, the ground is exposed to wintry blasts and the occasional droughts common in high summer; and in the other, blights and severe frosts, and excessive damp in autumn may be expected.

As to the shape of a garden, it matters little what it may be; for ornamental purposes, irregular figures can generally be turned to good account, but the portion assigned to profitable culture, should be as regular in form as possible, so that the compartments may be easily got at, and the divisions between them regularly kept. A square or oblong plot is best for the purpose, but there is one point of great importance, and that is, that there should be free ingress and egress, not for the gardener merely, but for a horse and cart, so that manure, soil, trees, &c., may be brought in, or carted away, without any excess of wheelbarrow work. As to the extent, nothing definite can be said, beyond this, that an acre is as much as any one person can manage to do it well; and even then, an extra hand will be occasionally required. One rood well tilled, will supply all the wants of a small family in all ordinary things, but if they aspire to pines, forced-grapes, peaches, and nectarines, and insist on having new potatoes and frame cucumbers every day in the year, the exact dimensions necessary cannot be determined except by themselves and their own gardener. A good supply of soft water, a deep loamy soil, facilities for obtaining supplies of manure, and nearness to the gardener's residence, are the only remaining qualifications that need here be mentioned.

Now, many readers of these pages have gardens that realise all, or nearly all of these conditions, and so far they are in "luck's way," while many others will consider it only tantalising them, to describe requirements that are quite beyond their reach, for few of us have the power to pick and choose at will; somebody must be located on the ill-placed lots, and whatever the position, extent, or nature of the soil, you must set out, and keep going with a determination to make the best of it. Now, as soon as you have read this chapter, just take a look round and see if you cannot produce many of the conditions that are described as so desirable. Are there no old and useless trees, that shut out the best of the morning sun, and prevent you from cropping to advantage some of the best placed pieces you have? Are there no overgrown hedges that rob you of hundreds of yards of ground, that might be cut in, and converted into fire-wood, pea-sticks, or rubbish to burn into manure? Are there no choice spots, lifted up out of damp,

and nicely placed to the first rays of the morning sun, that you might turn to better account than you do, and where many choice things would flourish, that you never thought of cultivating? Are your fruit bushes crowded and cankered, your tree-fruits overgrown, and many of them occupying ground for which their annual crops are no equivalent; and if none of these things that may be altered for the better, could you not, by a little earnest labour, improve a bad aspect, and extend your space, so as to gain every inch possible of open soil, on which your skill may have fair play? I know from what I see everywhere, as I travel up and down the country, that there are few gardens, and especially those of the industrious classes, but might be made to produce double what they do, and everything of better quality, if the tenants had but the courage to cut down an old maple here, or a straggling elder there, or if the fence was repaired, the hedge cut close in, the walks made few and straight, and no wider than three feet, and every inch of wall covered with something either useful, or beautiful, or both. See what you can do as to the figure, extent, and exposure of your ground, before you lay out your plans for cropping;—for good soil, a free ventilation of air, and plenty of sun at all times, are the main elements of the first start in profitable gardening.

Now, whatever the shape, aspect, or quality of the soil, you will find it very advantageous to secure one or two narrow borders under a wall or fence, or, perhaps, you may have a continuous border all round, on one side, enjoying early sun, and on another, but little of it. These borders are of great value. In early spring, when the first sowings of lettuce, cabbage, horn carrot, and such things are made, a border under a wall is the best place for them, especially if it has the morning and midday sun, and be well drained. All tender things, got in a little before the usual time, would do well in such a position, and many may be safely sown there at a time when they would perish if exposed in the more open ground. The first crop of ash-leaved kidneys, and a little of every summer vegetable, may be thus obtained a fortnight sooner than in the open ground, and from seed-beds in such a position, plants for putting out may be raised to great advantage. The borders exposed to the north will not be less useful, for the practical gardener is as glad of a shady spot as he is of plenty of sun elsewhere, and many things, lettuce especially, may be had, late in the season, when those fully exposed to the sun, will be "bolting" to seed. The walls and borders arranged with a continuous walk round them, leave the open space clear for general operations. Here utility must determine the general plan, fancy must be put out of the question. We must have as many large square patches as we can get, with no permanent walks, but narrow alleys, only trodden with the foot, and every year turned over, and fresh ones made elsewhere, unless the extent of the ground renders a permanent walk or two necessary, and then they should be just wide enough for a loaded wheel-barrow to pass freely, and without damage to the plants that grow next the edging.

Reducing these principles to one general scheme, we will suppose the reader in possession of an oblong plot of ground, for that is the figure most common. A wall runs all round; on the north and east sides it is highest, lowest on the south; it is surrounded by a border four, eight, or twelve feet wide, according to the extent of the ground. The walk is three feet and a half wide, but three feet will do, and just allow the barrow to pass conveniently. These walks ought to be well made, either of good gravel on a deep bottom of clinkers, ashes, or building rubbish, or of concrete, as Mr. Beaton advises, thus—

A layer of stones, brick-bats, shells, or clinkers, six inches deep, to form a dry bottom; a layer of chalk or lime, in the proportion of one to ten of the stones, or other foundation, and well rolled and watered, to the thickness of three inches, with a rise of two inches in the centre; over this half an inch of gravel and lime, or fine chalk;

water and roll well again; add one eighth of an inch of the best coloured gravel, and again roll until quite solid. Have the walk two inches wider on each side than you desire—this checks grass and weeds from encroaching, and prevents the rain-water getting to the foundation of the walk.

(To be Continued.)

JANUARY WORK FOR GARDEN AND GREENHOUSE.

As this is the time when all the world "turns over a new leaf," the gardener must not be behind-hand in effecting such reforms as the experience of the past may have suggested. It must be "now or never" with those who are making new plantations, or altering or improving old ones. Spring is not far off, and the first stir of the sap in the leafless branches, will be the signal to leave off planting, and all such work should be hurried on whenever the weather gives an opportunity. Roses ought to have been planted long ago, but there is still time to get in briars, and to move worked plants from the nursery-beds to the places they are to permanently occupy. If work presses hard, leave all minor jobs, and get the planting finished, and especially of all deciduous trees and shrubs, for there is no more active cause of ruin to trees and shrubs than moving them after the sap has begun to flow, the result in most cases of needless procrastination. Composts should now be turned over to let the February frosts into them; stacked turf should for the same reason be stirred over, and as fast as one surface of exposed manures is frozen hard, turn it over and expose another—in fact let the frost operate freely on all composts and soils as much as possible, and to increase the amount of surface exposed to it, ridge up any vacant patches in the kitchen garden that have not been already so treated.

Kitchen Garden.—Sow small breadths of early peas and beans in sheltered spots, or in frames for transplanting. At a meeting of the Horticultural Society, on the 7th of July last, Mr. McEwen sent three dozen kinds of peas, stating the order of their ripening. The seven earliest were the following:—1, Sebastopol, two feet; 2, Eastling's Early Dwarf, eighteen inches; 3, Carter's Earliest, two feet; 4, Sangster's No. 1, three feet; 5, Emperor, three feet; 6, Early Nimble, eighteen inches; 7, Harrison's Glory, three feet. Small sowings may be made of lettuces, cauliflowers, and cabbages in boxes to be forwarded in gentle heat; and plantations of horseradish may be made. The ground should be trenched two feet, and *fresh* manure laid at the bottom of the trench; then dibble in the crowns in rows, two feet apart, the sets six inches from each other. Asparagus, sea kale, and rhubarb may be forced with very little trouble by making up a hot-bed in an old frame, taking up the plants and placing them on it, and covering with any light soil; if the heat does not hold till the plants have done their work, warm linings must be used. Mr. Fry's sea kale pot, made by Pascall, of Chislehurst, Kent, is an invaluable contrivance for blanching sea-kale.

Flower Garden.—Autumn planted Bulbs will soon be pushing through, and though moderate frosts will do them no harm, it is as well to mulch the beds to guard their foliage from the effect of the severe frosts which frequently follow heavy rains at this season. The best beds of tulips should be covered during storms, if there is any indication of a frost following, but if the weather continue mild and open, let them have the benefit of gentle showers. Tulips, however, are the hardiest of all bulbs, but hyacinths, gladiolus, ranunculus, anemones, and Cape bulbs generally need some little protection during severe weather. During dry weather, it is well, at this season, to stir the surface of tulip beds, to give air to the roots and lay the soil, finely broken,

against the stems. After frosts, look over the borders, and where plants have been lifted, press the earth close about them. Have at hand fern, dry litter, or mats, to protect any out-door things of questionable hardiness, but do not keep them swathed up longer than is strictly necessary. Guyot's straw protectors, exhibited at the Society's autumn fruit-show, are the best and cheapest of all coverings for cold frames; small subjects, such as pansies may be protected by means of a garden pot, turned over, and with the hole stopped; this should be removed every morning when the weather is not too severe. Beds of pinks should now be top-dressed with rotten dung. Auriculas, pansies, carnations, and other herbaceous plants in pots, must have plenty of air and moderate waterings, for they are now begining to grow—for all such things a north aspect is best during the whole of this month, for the morning sun is often more injurious to them than one or two extra degrees of frost. Prepare ground for plantations of dahlias, hollyhocks, carnations, and chrysanthemums. If well trenched and broken up with dung now, it will be in much better condition at planting time than if made ready at the last moment.

Greenhouse.—The cultivator must be daily on his guard against severe weather, and rapid growth must not be promoted. Camellias, and other plants coming into bloom, should be kept liberally moist, and should have weak manure-water once a week, they should be placed in the warmest parts of the house; ericas, epacris, &c., may have cooler places. Bedding plants may now be started for cuttings, where there are good appliances for propagating, but, where resources are limited, it would be better to wait till next month. Fuschias of good sorts should now be repotted in peat and fibrous loam, and started for early blooming, and such as it may be desirable to propagate, will soon furnish cuttings for the purpose. Calceolarias, cinerarias, geraniums, and primulas should have a warm position, and moderate supplies of water; those that require it, should be cleaned and shifted, and all plants showing trusses, should have weekly doses of manure water, and abundance of light, and as much air as the state of the weather will permit. If you have not potted tropœolums do it at once, and train every day as they make growth. Watch for green fly and fumigate before mischief is done. Keep the house as clean and dry as possible, and admit air on fine days whenever the temperature outside rises above 35 degs., and especially among heaths, and hard wooded plants. Keep succulents quite dry. Temperature 40 degs. to 45 degs. at night, 50 degs. to 55 degs. by day.

Stove.—At this season it is necessary to guard against premature excitement, the solar light being insufficient to sustain a healthy rapid growth, hence, water must be given sparingly, and the breaking of the plants retarded as much as possible till next month, by the maintenance of a very moderate temperature; on the other hand, stove plants that are now coming into bloom, or, such things as are forced in the stove for greenhouse and conservatory embellishment, should have every encouragement. Forced roses should be looked over, and the buds examined for the detection of grubs, and the drainage of large pots should be looked to, to see that no stoppage occurs. Plants intended for specimens, must be repotted as they require it. Orchids and ferns may be repotted and separated where desirable; *Poinsettia pulcherrima*, and *Euphorbia jacquiniflora*, may be taken to the greenhouse if the temperature there ranges about 50 degs., and a few achimines and gloxinias may be put in heat for early blooming. Cucumbers and melons for early use, should be got in at once. Average temperature of the stove this month, 60 degs.

SELECTION OF GREENHOUSE SHRUBS AND CLIMBERS.

The following are subjects of easy culture, and in every way adapted to the requirements of beginners, being mostly free bloomers, offering considerable diversity of character, as to habit, and season of flowering. They are also comparatively inexpensive, and obtainable at any respectable nursery. Those marked thus (*) are most desirable for small collections.

SHRUBBY PLANTS.

*Acacia armata.....Yellow...May to June
A. Lambertiana ....Purple... ,,
A. pulchella .....Yellow... ,,
Adenandra uniflora...Pink .....April to July
,, umbellata Pink ..... ,,
*Azalea indica .....In var....Mar. to May
*Boronia serrulata ...Red .....June to July
,, pinnata ...Purple ...Feb. to May
Bouvardia triphylla Scarlet...April to Nov.
*Camellia japonica...In var...Jan. to May
*Chorozema cordata Red .....April
*C. Dicksonii.....Scarlet...July
Coleonema tenuifolia Rose ...March
*Cytisus tomentosus Yellow...July to Aug.
Daphne odora.....Purple...March to Dec.
Diosma cupressina ...Pink ...June to July
*Elichrysum fulgidum Yel....July
*Epacris grandiflora Crimson Jan. to June
,, nivalis .....White... ,,
,, impressa ...Crimson ,,
*Erica splendens ...Scarlet...April to Sept.
* ,, grandiflora ...Yellow...May to Sept.
* ,, aristata major Scarlet Mar. to April
* ,, Shanoniana { Wht. & Purple } June
* ,, Massoni..... { Red & Green } July to Oct.
Gardenia radicans ...White...Mar. to June
*Genista canariensis Yellow...May to Sept.
Jasminum odoratissimum .....White...May to Nov.
Nerium splendens ...Pink ...June to Oct.
* ,, oleander Red ...August
,, ,, album White...June to Oct.
Pultenæa obcordata ...Yellow...May to July
*Salvia fulgens .....Scarlet...May to Sept.
* ,, patens .....Blue ... ,,

CLIMBERS AND TRAILERS.

*Bignonia grandiflora Orange July to Aug.
*Cobea scandens.....Purple...May to Oct.
Erythrina crista-galli Scarlet May to July
Gompholobium polymorphum.....Yellow...Mar. to Aug.
Jasminum revolutum Yellow...Mar. to Sept.
Kennedia prostrata...Scarlet...April to June
,, nigricans...Purple...Mar. to June
*Maurandia Barclayana .....Purple...April to Dec.
Lophospermum.....Var.....July to Nov.
*Mandevilla sauveolens .....White ...June to Aug.
*Passiflora cerulea racemosa.....Purple...June to Oct.
Sollya heterophylla...Blue ...July to Oct.
*Thunbergia alata ...Yellow...May to Sept.
,, alba ...White...May to Sept.
*Tropæolum tricolorum .....Orange-purple...May to Aug.
* ,, azureum ...Azure...May to Nov.
* ,, brachyceras Yellow...May to Sept.
* ,, majus flore pleno ...Orange...Aug. to May
,, Jarrattii { Scarlet Yellow } June.

SELECTION OF FRUITS FOR SMALL GARDENS.

Any of the following may be selected with safety, according to the space of ground to be planted. The list contains only such sorts as are most renowned for merit, and, generally speaking, adapted to the greatest variety of soils and situations. They are all obtainable at moderate prices, with the exception of the Salway Peach, which was lately let out by Mr. Turner :—

Apples—Blenheim Orange, Nonpareil, Lord Suffield, Cornish Gilliflower, Ribstone Pippin, King of Pippins, Court of Wick, Kerry Pippin, Golden Reinette.

Pears—Jargonelle, Williams' Bon Chretien, Bergamotte, Marie Louise, Pas Colmar, Winter Nelis, Swan's Egg.

Plums—Greengage, Chapman's Prince of Wales, Coe's Golden Drop, Victoria, Washington, Jefferson.

Cherries—Bigarreau, Black Tartarian, Elton, Downton, May Duke, Morello.

Apricots—Moor Park, Breda, Royal.

Peaches—Grosse Mignonne, Royal George, Noblesse, Old Newington, Late Admirable, Salway.

Nectarines—Elruge, Early Newington, Roman, Orange, and Downton.

Grapes—For open walls: Dutch Sweetwater, Black Esperione, Miller's Burgundy, White Frontignan, July Black Cluster.

Grapes—Requiring heat: Golden Hamburgh, Cannon Hall Muscat, Black Hamburgh, Chasselas Musqué, White Tokay.

Currants—Black Naples, Monstros de Berry, Red Victoria, White Grape, White Dutch.

Raspberries—Carter's Prolific, Fastolf, Red and White Antwerp, Rivers's Double bearing.

Strawberries—Black Prince, Kitley's Goliah, Keene's Seedling, British Queen, Sir Harry, Filbert Pine.

CLIMBERS FOR NORTH WALLS.

Stauntonia latifolia.
Jasminum officinale.
Clematis Montana.
Common Fig.
Irish and variegated Ivy.
Virginian Creeper.

ROSES.

Filicite perptuelle, and any of the Ayrshires.
Cotoneaster mycrophylla.
Chimonanthes fragrans.
C. Grandiflorœ.

The three last named are the least hardy, and will only do in a north aspect in the south of England, or in positions well sheltered.

METEOROLOGICAL CALENDAR FOR JANUARY.

31 DAYS.		WEATHER NEAR LONDON, JAN. 1857. BAROMETER. MAX. MIN.	THERMOM. MX. MN. MN.	WIND.	RAIN.	31 DAYS.		WEATHER NEAR LONDON, JAN. 1857. BAROMETER. MAX. MIN.	THERMOM. MX. MN. MN.	WIND.	RAIN.
F.	1	30.063—29.908	53 40 46.5	W	.10	S.	17	30.295—30.261	46 36 41.0	W	.00
S.	2	29.722—29.684	51 35 43.0	W	.06	M.	18	30.277—30.232	50 41 47.0	W	.00
S.	3	29.266—29.110	50 37 43.5	SW	.04	Tu	19	30.256—30.187	48 25 36.5	NW	.02
M.	4	29.374—29.119	42 33 37.5	SW	.12	W.	20	29.730—29.308	44 29 36.5	SW	.17
Tu	5	30.043—29.781	35 28 31.5	NE	.00	Th	21	29.679—29.447	39 24 31.5	W	.00
W.	6	30.279—30.032	36 25 30.5	NE	.00	F.	22	29.791—29.510	43 32 37.5	SW	.13
Th	7	30.346—30.304	35 28 31.5	NE	.00	S.	23	29.355—29.145	45 31 38.0	W	.04
F.	8	30.308—30.221	42 35 38.5	E	.11	S.	24	29.126—29.062	42 33 37.5	NW	.17
S.	9	30.143—29.797	48 40 44.0	SW	.71	M.	25	29.594—29.229	39 30 34.5	NE	.05
S.	10	29.589—28.989	51 38 44.5	W	.27	Tu.	26	29.805—29.613	36 30 33.0	NE	.13
M.	11	29.292—28.940	45 24 34.5	W	.07	W.	27	29.865—29.847	36 19 27.5	NE	.00
Tu	12	29.215—29.096	45 29 37.0	W	.00	Th.	28	29.839—29.766	37 18 27.5	NE	.00
W.	13	30.338—29.193	37 28 32.5	E	.00	F.	29	29.872—29.778	32 14 23.0	N	.00
Th	14	30.144—29.944	38 18 28.0	N	.00	S.	30	29.841—29.615	38 30 34.0	NW	.00
F.	15	30.063—29.954	42 29 35.5	SW	.10	S.	31	29.849—29.597	39 8 23.5	SW	.00
S.	16	30.217—30.047	45 26 35.5	W	.00						

AVERAGES FOR THE ENSUING MONTH.

During the past sixteen years, the average temperatures near London have been :—Max., 43° ; min., 33° ; mean, 38° ; the average reading of the barometer, 29.907 ; and the fall of rain 1.9 inches. The highest temperature observed during thirty-two years past occurred on the 19th, 1828, when the thermometer registered 60° ; and the lowest on the 14th, 1838—4°.

PHASES OF THE MOON FOR JANUARY, 1858.

☾ Last Quarter, 7th. 12h. 47m. a.m.
☽ First Quarter, 22nd, 4h. 57m. p.m.
● New Moon, 15th, 4h. 28m. a.m.
○ Full Moon, 29th, 8h. 49m. a.m.

TO CORRESPONDENTS.

Preserving Fruit.—*B. B.*—Your plan of packing apples and pears in damp hay, and shutting them close down in a box, caused a brisk fermentation, and it is not surprising that the greater part are now proved to be rotten. Sort them over at once, set apart for immediate use those that are only partially spoilt, and pack the rest in some dry straw, out of the reach of frost and light. Fruit should be quite dry when stored, and the cooler the place assigned to it the better, so that it is safe against frost.

Names of Plants.—Since naming plants gives much trouble, and the replies occupy space for information useful only to the parties sending them, we beg our readers not to expect us to assist them in a task which a reference to a botanical work would, in most cases, render unnecessary.

S. E. D. Burnley.—Heating by Gas, Training the Raspberry, and Improving Collections of Fruit, next month.

Kerping out Frost.—*Harry.*—You may keep the frost out of your pits by a free and judicious use of matting ; thatched hurdles are very convenient for the purpose, because easily lifted off and on, and creating no litter. We have many a time put a lighted rushlight into a small pit, on a sharp night, and with a mat or two kept all safe. In a greenhouse, or a small conservatory without a flue, a large stone bottle, painted black, and filled at night with boiling water, will be found to radiate sufficient heat to keep the temperature from sinking to freezing point.

Frozen Plants.—*Hyacinth.*—To recover plants touched with frost, it is best to thaw them as slowly as possible, and in the dark. Light and moisture at such a time are ruin to plants of delicate constitution, and, if they recover at all, it can only be by thawing them gradually, as in a cool cellar, or soms place only one or two degrees warmer than freezing point.

*** Our readers will please to consider all coloured illustrations as *gifts*. We do not *pledge* ourselves to give them at any time, though we hope occasionally to do so.

THE

FLORAL WORLD

AND

GARDEN GUIDE.

FEBRUARY, 1858.

O one who has enjoyed an hour at Kew Gardens, but must ever after take a lively interest in all that relates to the maintenance of that splendid establishment, the interests of which have for so many years been most zealously cared for by that eminent botanist, Sir William Hooker. Professional gardeners and students of horticulture, to whom it is a place of frequent resort, have long been aware of a fact which the public generally have scarcely yet become acquainted with—that the choicest part of that unrivalled collection has entered on its decline, and will, perhaps, be speedily lost to the nation, for want of a little pecuniary help from the public purse. More than two years ago, Sir William Hooker called the attention of Sir Benjamin Hall to the condition of the stately Conifers of Australia and New Zealand, and the splendid palms and shrubs of the tropics, as "suffering beyond recovery for want of suitable winter shelter;" but, though the matter was named in the House of Commons, the First Commissioner declined to render the least help, because the estimates were heavy, and the nation could not afford to provide shelter for a few of its choicest botanical pets. Sir William is not the man to be disheartened by trifles, and he appealed again—that though many of the Chilian, Mexican, and Norfolk Island trees and shrubs,—"for the possession of which the Royal Gardens of Kew have long been celebrated"—had suffered beyond recovery, and could only be mentioned "in the past tense," others might "yet be restored by the needful amount of space, light, and temperature," which would be afforded them in a conservatory constructed especially to meet their wants, for "during sixteen years of

of my directorship no addition has been made for the accommodation of these kinds of plants." This appeal was as unsuccessful as the former; and specimens of the finest trees in the world, which need only slight protection from the frosts of winter, are now to be seen huddled together in the houses they have outgrown—perishing in darkness, or compelled to brave out the trials of an English winter, every blast of which hastens their ultimate demise, because the nation cannot afford them simple house room.

No expensive constructions are asked for, no new palm-houses requiring costly arrangements for ventilating and heating, but a plain conservatory, in which they can enjoy the daylight, secure from winter frost, and which, as a winter garden, would be a new source of pleasure to every visitor to Kew; and if this is not afforded them at once, the remnant of the noblest collection of plants in Europe, still including gems of priceless value, which have not yet succumbed, will be sacrificed for ever. The nation readily provides salaries, bounties, grants, and dowries; but, as represented by the administrators of its means, a quarter of an acre of glass stands between it and bankruptcy. For the sake of our name and fame, as well as for the interests of horticulture, with which every phase of our national progress is identified, we do hope that another session will not be allowed to pass without a fair consideration of the claims of Sir William Hooker on behalf of his family at Kew.

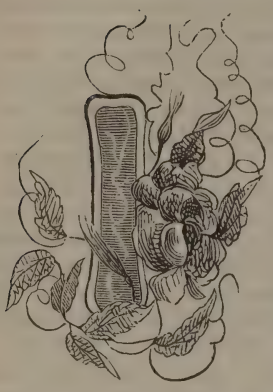
The year 1858 is to be crowned with a garland of roses, and the vexed question of rose catalogues, and the well-fought battle of the new and old roses, so differently conducted to that of the historical flowers of York and Lancaster, will have a profitable issue. On the first of July we are to have a "grand national rose show," open to all exhibitors in their respective classes, in London; the object being to give fair play to all exhibitors and all roses; and if some of the leading points in rose controversy are not then cleared up, it will be no fault of the promoters of this truly national undertaking, which will be literally a "feast of roses," worth the sacrifice of time and railway fare, and will afford the best opportunity ever yet offered of comparing varieties and making selections. Subscriptions in furtherance of the design are earnestly requested from all lovers of the rose, and will be received by Mr. Rivers, of Sawbridgeworth; Mr. Paul, of Cheshunt; Mr. Turner, of Slough; and the Rev. S. Reynolds Hole, of Caunton Manor, Newark, Notts. The last-named gentleman is open to communicate with rose growers interested in the exhibition.

The Horticultural Society has announced the following meetings and exhibitions:—On the 2nd of February, a meeting at Regent-street, when eight prizes will be awarded; five for Camellias in threes and sixes; three for miscellaneous groups of flowering plants, in sixes; and certificates for other objects. On the 2nd of March, there will be an exhibition of Hyacinths, Rhododendrons, Cinerarias, Primulas, and forced vegetables, with a liberal list of awards. On the 21st and 22nd of April, the grand spring meeting will take place in St. James's Hall, the chief items in the schedule being Hyacinths, Tulips, Narcissi, Fancy Pelargoniums, Camellias, and Roses, Foliage Plants and Fruits, and an additional prize of £5 offered by a V. P. H. S. for the best Pine Apple of any kind. The Grand Garden Show will take place at Chiswick, on the 9th and 10th of June,

when there will be a brilliant display of Orchids, Stove and Greenhouse Plants, Roses, Azaleas, Pelargoniums, Cut Flowers, and Fruit. On the 8th, 9th, 10th, and 11th of the same month, so as to include the two days of the Grand Flower Show, there will be an exhibition of Horticultural Manufactures, including apparatus for heating, mowing machines, garden tools, cutlery, pottery, objects of decoration, philosophical instruments, protecting materials, bee hives, &c. The grand autumn meeting will take place at St. James's Hall, on the 17th and 18th of November, when Fruit, Chrysanthemums, and Foliage Plants, will be the chief objects of attraction. Arrangements are in progress for the formation of a jury, to meet monthly, for the examination of all new fruits that may be submitted to them. Among the announcements of local shows, we may mention that two will take place in the Bristol Zoological Gardens, on the 2nd of June, and the 8th of September; and the Brighton and Sussex Floricultural Society will hold two shows of two days each, the first on June 30th and July 1st, and the second on the 15th and 16th of September. Three Horticultural Exhibitions are announced to take place at the Crystal Palace, as follows: Wednesday, May 19; Wednesday, June 16; and Wednesday and Thursday, September 8 and 9. On the 4th of this month, the Pomological Society will meet to consider the merits of fruits submitted, in accordance with the schedule noticed by us last month. Subscribers to that useful charity, the Gardeners' Royal Benevolent Institution, will hear with pleasure that Michael Quigley, Martha Gardiner, Elizabeth Pope, and William Jackson, were elected pensioners on the 13th instant, when an election of officers for the ensuing year, took place as follows:—Robert Wrench, Esq., treasurer; J. J. Mechi, Esq., vice-president; Mr.J. Vietch, jun., trustee; Edward Rosher, Esq., arbitrator; Messrs. Charlwood, Lea, and Forsyth, auditors; Messrs. J. A. Henderson, Rivers, Atlee, Shereard, Page, and Bruce, committee; and Mr. E. R. Cutler, re-elected secretary.

Death has snatched from us two names of eminence in the annals of Horticulture—the Duke of Devonshire, and Dr. Royle. The Duke of Devonshire was a munificent patron of horticulture, and, with a liberal hand, gave encouragement to all the higher departments of plant culture, and its associative architectural accessories. Chatsworth had a world-wide renown, both as a school which has sent many a brave spirit into the world, and as an example of the refined tastes of its noble possessor, who, in every sense of the word, was a man of science, and a gentleman. His grace died on Monday, the 18th of January last, aged 68 years. Dr. Royle's death occurred on the 2nd of January last. He was one of the most distinguished botanists of this present century, and the first authority on the agriculture and plants of the East. His "Materia Medica" is, in itself, a splendid monument of diligent research, and high ability in generalisation.

IMPROVING COLLECTIONS OF FRUIT.



N most cases of complaint about fruit failures, people have themselves to blame only, and, perhaps, there is no one department of horticulture in which more mistakes are made than in the management of hardy fruits. Four years ago, I came into the possession of a piece of ground of about thirty acres, at R——, near Southampton. For distinction's sake, the place is called a fruit garden, but about one-third of the ground is devoted to rotation cropping, and we find mangels, swedes, Italian rye-grass, and market vegetables, to pay best; and we keep five cows, and generally half-a-dozen breeding pigs. When I took possession, there was an immense stock of apple, pear, plum, and currant trees on the ground; they had been well planted originally, but for ten years, at least, had been going steadily to ruin. The trees were cankered; the bush fruits had grown into a wilderness; the apples were eaten up with American blight, and their trunks were blotched all over with running sores; it was truly disheartening to go over the ground and see the havoc that time, assisted by neglect, had made. The ground varies a good deal as to level, and there is scarcely half-an-acre that can be called flat; the higher parts are a rich loam, resting on clay, and these shelve down in trowel-shaped slopes to the river, where the land gets more clayey, and is occasionally flooded. On one good piece, lying towards one of the lower levels, there were originally five hundred orchard apple trees, mostly Keswick and Manx Codlings; and on another piece, placed rather higher, a large stock of Ribstone and Golden Pippins, all terribly cankered, and seemingly unable to produce another fruit as long as they should continue to linger. By cutting a few trenches, the first autumn, we made acquaintance with the nature of the sub-soil, and saw what was the first thing to be done; the trees were, on the lower piece, perishing of cold feet; they had, in fact, sent their roots down into a bog, and had but few surface fibres. There were six acres on one slope with a good fall, and here we made our first step in draining. We drained the whole with four-inch pipes, putting a row of pipes between each row of trees, at thirty-five feet distance, and then proceeded to dress the surface soil. On one part of the ground was an immense heap of rubbish, chiefly road-scrapings and turf; this was turned over and wheeled on to the ground, and with it all the manure we could scrape together. We then spread this mixture of manure and turfy rubbish under the trees, about four inches thick, and forked the ground regularly all over, and round every tree cut a trench, so as to shorten in all the roots. A few of the worst at the lowest part we treated differently, for at one side of each we worked away till we got to the tap roots, and these we cut through with a chisel, so as to cut off all connection between the tree and the lower stratum of the soil. On the ground higher up we contented ourselves with waiting till December, and then we removed the top soil from around every tree, and ridged it up, so as to expose the roots to the frost. At the end of January, during mild weather, we commenced a general cleaning and pruning. We made an immense quantity of lime-paint, as follows:—To every bushel of lime we added four pounds of flower of sulphur, mixed the whole with water into a thick paint, and, after scraping off the loose bark, painted every tree with it. Those that had been bared to the roots we painted as low down as possible, and then returned the earth that had been ridged up.

When we came to the pruning, we cut clean away every dead branch, and made only a moderate thinning where the trees were crowded, for I determined that a too severe use of the knife might prove injurious. All the wounds in the stems were stopped with clay and tarred over, and a week afterwards we went over the stoppings, and repaired any that had cracked, and laid on a fresh coat of tar. Many of the trees that appeared scarcely worth the labour were felled, and a few, for experiment's sake, were grafted, in the following March, on the old stocks; but as few of them have come to any good, I shall say nothing about it beyond this—that, if a tree decays owing to inefficient root-action, re-grafting the stock is just a waste of time and labour. In dressing the pears—of which we had a hundred Bon Chrétien, and about two hundred and fifty other kinds—mostly Standard Beurré Diel, Swan's Egg, and Catillac—we made a regular thinning of the branches, but not to the extent that they required—for I never like to deal rashly with anything, and prefer summer pruning as the safest. But the greatest trouble we had with these was owing to the suckers, which formed a sort of little forest round every tree, and in some cases had started up between the rows at fifteen or twenty feet distance from the stems. But, as the trees were generally healthy, and, to all appearance, had done well, we determined to take a little extra trouble with them. We had a stack of turf burning at the time, and we carted up from the river-side an immense quantity of sedge and clay, and burnt this with the turf; and when we had got a good stock, I had all hands to work at the roots of the pear trees. We took off the top spit, cutting away all the suckers at the same time, but doing as little injury as possible to the surface fibres; and then, at a distance of five feet from each tree, cut a deep circular trench, and cut in every root to that boundary. We then filled in the trenches with rubble, consisting of brick-bats, old mortar, and other dry rubbish, which we rammed in as hard as possible; and over the surface of the exposed roots, within the circumference of the trench, we laid down six inches of turf, and over that a layer of the charred rubbish, and then some of the original surface soil, to the same level as it was before.

As for the bush fruits, we literally slaughtered them. The currants had been originally planted at only three feet distance each way, and had all grown together into "bush;" but, in spite of that, the long rods, which, the previous season, had not been shortened, were splendidly covered with fruit buds, and the black currant and gooseberries had abundance of young stems, as well as a wilderness of watery spray. The red and white currants we cut to skeletons, taking out from their base every ill-placed shoot, so as to leave the bushes open; and in shortening in the previous summer growth, respect was paid, as much as possible, to the clusters of buds at the base of each—so characteristic of the fruiting of these useful trees. We at the same time took out every other bush all over each plantation, forked in some half-rotten dung over the whole surface, and burnt about a thousand of those that were removed.

In February we planted between every thirty-feet row of fruit trees, black currants, which like partial shade and a moist bottom; on the higher and drier portions we made plantations of gooseberry; and on the low, fat clay near the river, we planted red Antwerp and Fastolf raspberry. I then made up a nursery—got plenty of Paradise and Quince stocks, and the next spring took scions from all the best sorts of apple and pear, adding scions of other sorts not in the collection; and now I have such a stock of young stuff, that I shall be able to plant twelve acres with young apples, pears, and cherries, and, having raised a few thousand young red and black currants from the best canes taken at winter prunings, shall soon have a fine collection to replace those that have become old and useless.

I expected a good result from draining and dressing, and was not disappointed. The trees have ever since borne well, and are getting their gaps well filled up with new wood, and are pictures of health. Last season, our

crops were enormously heavy, but there was a good deal of blight on the apples. Instead of painting them, however, I shall, before they break this spring, have them scrubbed with strong brine; and our wall fruits, in the home garden, comprising Passe Colmar, Jargonelle, Marie Louise, Thompson's, and Beurré Diel Pears, Moor Park, Breda, and Shipley's Apricots, a good collection of Peaches and Cherries, but no vines, I shall syringe with ammoniacal liquor from the gas-works, diluted with six times the quantity of water, and used quite hot. I shall do this just as the buds are opening, and I know that all their enemies will be settled for at least a season.

G. T.

NEW STOVE AND GREENHOUSE PLANTS

INTRODUCED LAST YEAR.

(Selected from the "National Garden Almanack, 1858."

GREENHOUSE AND COOL STOVE.

Achimenes rosea magnifica. A desirable addition to the plants of this class; flowers large, rosy purple, the eye spotted with yellow. A garden hybrid. Mr. Parsons.

Achimenes splendens. (Illust. Bouquet. 10.) Also called Tapina splendens. A beautiful dwarf trailing stove perennial, adapted for baskets; flowers numerous, separate, from the axils of the broad crowded tufted leaves; rich glowing scarlet, gemmate with warts around the throat. New Grenada. Messrs. E. G. Henderson and Son.

Anœctochilus Veitchi. A handsome dwarf stove orchidaceous plant, for bell-glass culture; leaves very handsome, green, beautifully streaked and veined with silver. India. Messrs Veitch and Son.

Arduina grandiflora. An evergreen greenhouse shrub, with sweet-scented white blossoms, also bearing crimson fruit, which are said to be richly flavoured. South Africa. Messrs. Rollisson.

Bouvardia Hogarth. (Illust. Bouq. t. 3.) A handsome greenhouse or half-hardy sub-shrub, with Ixora-like bunches of flowers; deep salmon pink, with a paler tube. A garden hybrid (longiflora × leiantha). Messrs. E. G. Henderson and Son.

Bouvardia Laura. (Illust. Bouq. t. 3.) A fine greenhouse or half-hardy sub-shrub, with large Ixora-like bunches of flowers; pale pink. A garden hybrid (longiflora × leiantha). Messrs. E. G. Henderson and Son.

Calythrix virgata. A neat and elegant, though not showy, greenhouse evergreen shrub, of slender, spreading, almost pendant habit, with heath-like branches, and numerous white starry flowers in bunches. N. Holland. Messrs. A. Henderson and Co.

Camellia reticulata flore-pleno. (Bot. Mag. t. 4976.) This differs from the common sort in having the flowers loosely double; they are of the same, or even a brighter rich rose colour, and larger, sometimes 5¾ inches in diameter. A magnificent conservatory bush. China. Messrs. Standish and Noble.

Cyanophyllum magnificum. A fine-leaved melastomaceous plant, the leaves being very large, a foot long, and nearly half as much wide, and beautifully stained with purple on the under surface. New Grenada. M. Linden.

Doronicum Bourgæi. (Bot. Mag. t. 4994). A branched erect greenhouse sub-shrub, with purple cineraria-like flowers, the leaves lyrate-pinnatifid; a showy and free-growing plant, intimately related to cineraria. Canary Isles. Kew Botanic Gardens.

Echeveria canaliculata. (Bot. Mag., t. 4986.) One of a set of curious and pretty succulent greenhouse shrubs, with a short upright stem, oblong, tapering, fleshy leaves tinged with purple, and racemes of flowers of a bright brick red, orange within. Mexico. Kew Botanic Gardens.

Epigynium acuminatum. (Bot. Mag., t. 5010.) A beautiful vacciniaceous evergreen shrub of dwarf habit, probably requiring only a greenhouse; flowers abundant, coral red, in drooping corymbs from the stem below the leaves. Bhotan and Khasya. Mr. Nuttall.

Eucharis amazonica, (Flore d. Serres, t. 1216—1217.) A charming evergreen bulbous stove plant, with broad deep green leaves and large white flowers, the central cup tinged with green. The flowers are upwards of 4 inches in diameter, pendant from the top to an erect scape, and having a slender curved tube; related to and closely resembling E. grandiflora, of which it is, perhaps, a large flowered variety. Para. N. Linden.

Gardenia citriodora. (Bot. Mag., t.

4987.) A neat stove or warm greenhouse evergreen shrub, remarkably free flowering; flowers pure white, deliciously scented, numerous, in short clusters from the axils of the leaves. Natal. Chelsea Botanic Gardens.

Grevillea alpestris. (Bot. Mag., t. 5007.) A pretty greenhouse evergreen shrub, bearing copious showy bright red curved flowers, merging into yellow in the upper half. South Australia. Messrs. Rollisson.

Grevillea Drummondi. A fine evergreen greenhouse shrub, interesting and distinct-looking, but not showy; habit erect; leaves finely divided; flowers in racemes, cream coloured. Swan River. Messrs. Veitch and Son.

Hydrangea (japonica) aureo-variegata superba. A fine-looking vigorous greenhouse shrub, bearing large foliage, with bold straw-coloured variegations, quite distinct from the white variegated kinds. A garden variety. Mr. Salter.

Monochætum ensiferum. (Illust. Bouq., t. 8.) A charming greenhouse soft-wooded shrub, of remarkably neat bushy habit foliage small, cheerful; flowers vivid rose colour, like Chironia, the scarlet claw-like stamens remaining gay after the petals have fallen. Oaxaca, Mexico. Messrs. E. G. Henderson and Son.

Statice macroptera. A handsome greenhouse perennial, with the habit of S. Halfordi, but with the leaves lobed at the base; the flower-stems very broadly winged; flowers violet and white. Probably a garden variety between S. Halfordi and S. imbricata. Mr. Glendinning.

Veronica decussata Devoniana. (Illust. Bouq., t. 3.) A handsome compact growing evergreen greenhouse or half-hardy shrub, the growth resembling a miniature Crassula, the flowers in globose heads, pure white. A garden variety. J. Luscombe, Esq.

CULTURE AND TRAINING OF THE RASPBERRY.

This useful fruit is but too often very carelessly grown, not by cottagers only, but by gardeners of some pretensions. Its luxuriant productiveness, even when the least care is bestowed upon it, leads to its almost total neglect in some places. It is common enough to see the canes left till spring unpruned, and tied up in close bundles to stakes, in which position they get neither light nor air sufficiently, and, for want of shortening in, the produce is far inferior to what might be had if a little cultural skill were exercised.

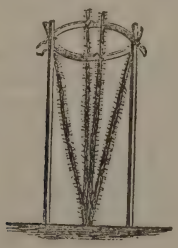
In planting the raspberry, a damp situation, in which many other things would perish, may be chosen. It likes a deep rich moist loam, and an annual dressing of half-rotten manure. We have grown the raspberry with much success in trenches, cut one foot below the general level of the ground, and which were speedily filled with water during heavy summer rains. In autumn, the end of each trench was opened to carry off the surface-water into the regular drainage of the garden, and after the canes came into leaf in spring, they were closed up again to allow of the trenches being filled with liquid manure, and to give them the full benefit of rains. On dry sandy soils, this plan would obviate the difficulties attendant on raspberry culture, because the trenches could be filled to a depth of two feet with a compost of loam, leaf mould, and rotten dung, or the top spit of a shallow soil could be turned into trenches cut four feet apart.

The raspberry may be planted any time from October to March, and as it is one of the few things that may be moved late with safety, we generally defer planting till the end of February, when they do as well as if planted in autumn. In making a new plantation, we prefer taking up the old stools and removing the plumpest suckers, rather than merely drawing away suckers from stools still in the ground. If planted three in a group, each group four feet apart, and the rows six feet asunder, there will be plenty of room for a system of open training, and if they enjoy plenty of moisture all the growing season, the fruit will be as fine as the sort grown, and that particular soil are capable of producing.

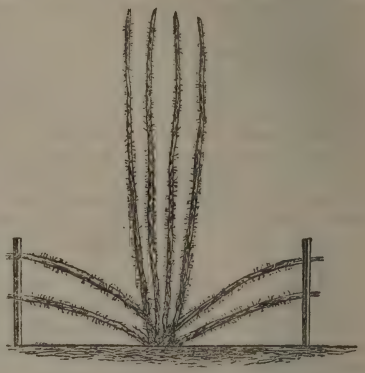
Whatever mode of training be adopted, it should be remembered

that the canes which bear fruit this present season will die in the autumn, and have to be cut away, and while they are in bearing condition others will rise from the stools to take their place next season, hence the bearing canes should be so trained as to allow the suckers to rise without obstruction in the enjoyment of a free circulation of air and plenty of light. If a plantation of raspberries gets crowded, the old canes choke the young ones, and the stocks get more lean and feeble every year, and at last cease to be profitably productive.

Another mode of planting is to put in single canes along a rough espalier fence of hazel rods, or against a wire trellis, the canes two feet apart, so as to allow two or three bearing canes to each, to be trained in at equal distances as they rise. Training on hoops, supported on light stakes, is a good



plan in the open ground, but the prettiest raspberry plantation we ever saw, was managed thus:—They were planted in rows three and a half feet apart, and five feet from each other in the rows. Each stool was allowed to send up only four canes, and these were trained out to short stakes, put in at equal distances from the centre of each plant; the canes, when tied out to the stakes, being shortened in to two feet and a half each. During the summer, the canes trained out bore fruit, and four others were allowed to rise in the centre. At the end of the

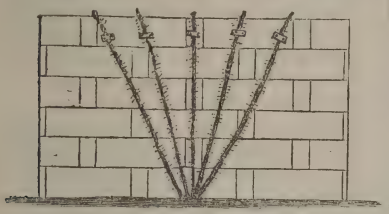


season, the canes trained out were cut away, and the new canes tied out to take their place for the next season, thus giving the bearing canes free exposure, and keeping the centre of each stool always open. Another method that has been described is to plant in rows six feet apart, and the canes three together, four feet apart in each row, and exactly opposite each other all through the piece. At the end of the first season, the year old canes are pruned away, and the young ones are bent down and made to meet each other so as to form arches

across the six-feet space, and the four feet space remains open for tillage, and the growth of suckers, and may, of course, be used for crops of small things, such as lettuce, cabbage &c., which will not rob the raspberries if the ground is kept in good heart, and the rows well watered during dry weather. The next season the old canes would be cut away, and the young ones bent over the four-feet space, and shortened so as just to meet for tying together, and through that season the six-feet space would be cropped with vegetables and salads just as the four-feet space was the

previous year. Other modes of training in arches have been adopted, but

none are equal to this plan of changing the space covered every year. The



figures represent six different ways of training, either on walls, trellises, hoops, or in arches, and as they are all simple and unattended with expense, we strongly advise every grower of this much esteemed fruit to abandon the injurious practices of planting the canes or tying them in bundles as if they were osiers for basket making. Among the best sorts we may name the good old red Antwerp, and the Fastolf as still taking the lead; Carter's Prolific is an excellent sort for fruitfulness, but we are not sure that its flavour is equal to the Antwerp. Rivers's double bearing is good for a late crop, and should be cut down to within three or four inches of the ground in spring. Cutbush's Prince of Wales is a raspberry of immense strength.

BEATON ON VINE CULTURE.

In my review of the late glorious season, I referred to Mr. Beaton's experiments in vine pruning, the results of which were made known at the October meeting, at Willis's Rooms, in the exhibition there of the experimental bunches. I will now briefly state the conclusions arrived at by Mr. Beaton, and as communicated to the pages of that best of the weekly horticultural journals, the *Cottage Gardener;* and as the Floral World is not projected for poaching enterprises, but for the communication of original intelligence on gardening matters, I shall not trench on Mr. Beaton's outline of general culture, which is given in his usual hearty and explicit way, but confine myself to the subject of pruning, solely in accordance with my promise.

In 1852, Mr. Beaton planted on an open wall, at Surbiton, expressly for experimental purposes, a Black Esperione vine. It was allowed to bear a few bunches in 1856, and in 1857 was submitted to the experimental pruning. "There were," he says, "three principal young shoots and some smaller ones. I pruned them all with a view to the experiment; but to make my question more simple, I shall only mention one of the strong shoots. I pruned this one down to five good promising buds. One of these buds, *but not the top bud*, was intended to make a long shoot this season, and the other four buds, each to produce one bunch of grapes, and to be cut or stopped at different lengths before the bunches. The top bud, which was, and ought to be the strongest, I stopped at the third eye before the bunch; number 2 was stopped two eyes before the bunch; number 3 was stopped at ten eyes before the bunch; and number 4 at fifty-two eyes before the bunch. The question was then submitted to a number of eminent practical horticulturalists, which of the buds ought to carry the heaviest bunch, the best coloured, and the soonest ripe?"

In answer to this, Mr. Beaton received numerous replies, and, as showing how men of equal experience may differ on a point, which at first sight seems resolvable by theory alone, the replies were of the most varied character, and "out of seventeen returns in writing, only one hit the mark; and out of five by word of mouth, one, a nurseryman who never forced a vine, decided the right way, and four the contrary." The uncertainty existing

in the minds of practical men on this point is, however, easily explained by the fact of the vast difference which exists between the best mode of treating the vine under glass and with heat, and that which applies to it when grown out of doors. In the one case close pruning and stimulating manures bring about the same result as a comparatively poor soil, and the entire absence of manure, and the adoption of long rods do on open walls, that is, the production of fruit, the ultimate ripening of which is more a matter of temperature than of feeding. English gardeners having a general, but unjustifiable contempt for out-door grapes, are not ready to perceive how different are the circumstances under which they are produced, and as close pruning is found essential in the forcing-house, the same rule is applied to the vine out of doors, and this application is the great error so strikingly evinced in the several expressed opinions. But what was the fact as to the bunches? Number 4 bunch weighed 1 lb. 1 oz.; this was the bunch on the fifty-two joint shoot; numbers 1, 2, and 3, stopped at one, two, and three eyes beyond the bunch, weighed 40 oz. between them, or say 13¼ oz. each. Mr. Beaton says, "I had five other main shoots of last year's growth in fruit under the experiment, and each of them turned out exactly like this one. The longest shoot of the five was thirty-five eyes long, and the bunch weighed 15 oz. full."

Among the communications sent to Mr. Beaton on the subject, the following has a special interest, as illustrative of the management of vines on open walls:—

"I have twenty examples, merging from four to thirty buds, stopped beyond the fruit; thirty examples, from one to ten buds stopped beyond the fruit, and upwards of forty examples, stopped at three buds beyond the bunch. The kinds are the Sweetwater and the Black Esperione. According to the best of my judgment, the earliest by a few days, and the best coloured, are those with thirty eyes before them, and trained vertically; but for size of bunch, or for the quantity of fruit to be grown on a given space, recommend me to number 1, trained horizontally." In another communication, a very practical hand, after describing how an old vine had been renovated, by replacing the old branches with young shoots from below, said, "I thinned the bunches freely, allowed one bunch only to a shoot, stopped a few at a few eyes from the bunch, and the rest were not stopped till the end of August. Those shoots which were not cut back, produced the best berries, and the best bunches decidedly." The sequence indicates itself. In the open air but few of those conditions are ensured to a vine which it can enjoy in a vinery In the latter case an equable temperature, entirely under controul, so as to meet all its wants, a rich border and moisture both in the soil and the air, as may be requisite, are conditions very different to the full exposure to the seasons, and the absence of any special root stimulus—for too rich a soil only loads an out-door vine with more sap than it can elaborate—under which the former has to produce its fruit. In fact, the out-door vine has to feed largely from the air, and to take its own time and season to do so, and a certain amount of leaf surface is essential to the elaboration of the secretions out of which the fruit is made. Here, then, are Mr. Beaton's conclusions; let every grower of out-door grapes give heed to the horticultural magician.

"When we grow on the long rod system, which is the best of all out-of-doors, and is that which I practice, but is not the best under glass, we are safe if we stop the long shoot from the 10th to the 20th of August; but on the spur system out-of-doors, the spur ought to be stopped just when the vine is in and out of bloom, for it is at that moment that rivalry begins between the berries and the extending shoots, and all that I gained by the last thirty-five joints above my largest bunch, was one ounce; but the vine is much strengthened by the large surface of working leaves.

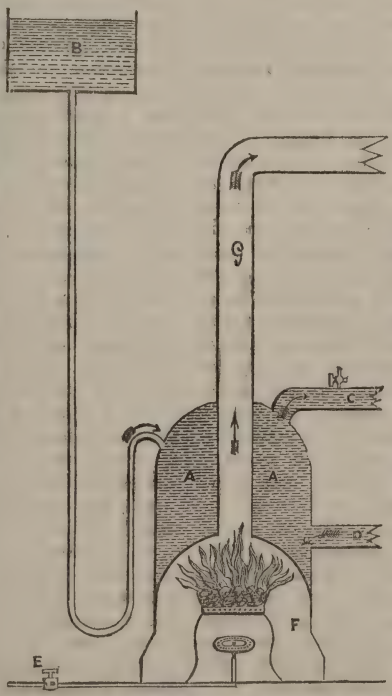
"To sum up in a few words, what I recommend is this:—Plant vines in good sandy soil, such as would grow good cabbages, not more than twenty inches deep; stop every shoot on the

15th of August, or not later than the 20th, nor earlier than the 10th till you come to fruit. The fourth year is time enough to crop, but prove your sorts by a bunch or two as soon as they offer. Stop all spurs on the spur system when the vine is in bloom, and not till then; but choose the long rod if you can manage it, as being a much better system out of doors, and with the long rod you may stop before the bunches as they do hot-house grapes, at the first, second, third, or fourth joint before the bunch, according to your room, and if you have more room do not stop till the vine is in bloom. Laterals do as much harm as they do good by shading the wall. I never allow a lateral leaf out of doors, but I only take off the leaf and the growing point *after two joints are made.* Laterals are indispensable in forcing. Prune any day in October—the sooner the better. Tread your vine-border very hard, and rake it over, and keep it raked in summer to save the ground from cracking. A coat of gravel would be better."

AN OLD GARDENER.

HEATING BY GAS.

I SEND you a sketch of an arrangement I have adopted for heating a greenhouse, and which answers to perfection. Some time ago I gained the hint from a gardening journal, and on putting it into practice, I found it advisable to make one or two alterations of importance. The apparatus consists of an iron boiler, A, through which passes a hot air funnel, G. The boiler is supplied by a small pipe from an open cistern in the house, entering the boiler at the bent arrow The heat is derived from a small furnace formed of a circular hoop of iron with a bottom of wire gauze. The furnace is filled with lumps of pumice stone, and is supplied with a gas burner placed below the wire gauze, and the gas passes up through the pumice stone and is there lighted. There are two distinct sources of heat, one by the flow pipe, C, which passes round the house and returns to the boiler at D, and the other by means of the hot air pipe G, which is carried along under a shelf against the back wall, and then out of the house at the other end. On this shelf I have this season forced French beans, and struck cuttings, and it answers well. The only precaution necessary is to prevent an accumulation of air in the boiler or pipes, and every time the gas is lighted, the stopcock at C should be opened to allow of its escape. The heat should at first be very slight, and may be increased as the circulation is established. A compulsory and frequent absence from home led me to adopt this plan, having had many losses through not keeping my fire in regularly. Now I find that the house may be left any length of time without fear of frost, and according to the thermometer and the state of the weather, we can increase or decrease the temperature to a nicety by means of the stopcock which regulates the supply of gas.—[A plan similar to the above was engraved in the *Gardener's Chronicle* about a year ago. Ed. F. W.]



PLAN OF A TOWN GARDEN

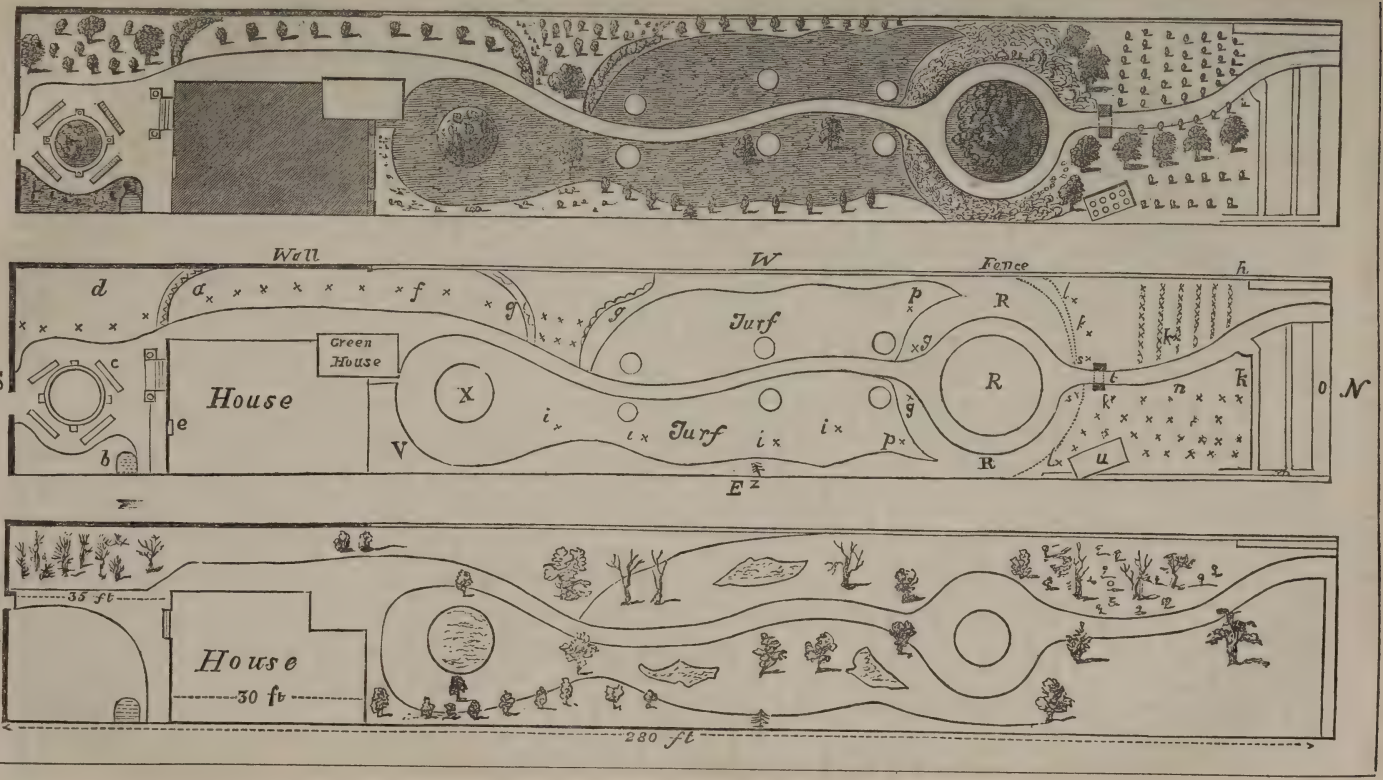
BY SHIRLEY HIBBERD.

Imaginary plans for gardens are, generally speaking, a waste of engraving and printing; they are of little use to readers, and where they may chance to be useful to one, they may lead a dozen others quite astray. The fact is, every garden has its own peculiarities, and must be laid out in accordance with them; and though an amateur may find some assistance to his invention in referring to plans designed by men of sound views and correct taste, he must not, therefore, abandon himself to them, but consider carefully how far the outlines that look so pretty on paper, are applicable to the garden he wishes to improve, taking into account the nature of the soil, the flatness or diversity of its surface, and the several accessories of the surrounding scenery.

Now, the designs here subjoined are not imaginary ones, intended to catch the eye, but actual reductions from the working plans of an amateur, who, in consideration of the health of his wife, has lately abandoned a garden in the country, and taken a villa at Stoke Newington, where the air suits her better than the marshy spot in which he, years ago, pitched his tent. Its general configuration is that of the stereotyped London garden—a long, narrow slip; and as it combines many features of a desirable character, I have determined to represent its original condition, side by side with the alterations now being made in it, feeling assured that the plans of one who has had much experience in the production of gardening effects, will prove acceptable to many readers of the Floral World, especially, as, at this time of the year, alterations and improvements demand a good deal of attention everywhere, and nowhere more than in the suburbs of large towns, where, for the most part, the gardens more or less resemble this, both in proportions and extent.

The situation of this garden is just under the shadow of the pretty old church at Stoke Newington, and the look out is free and uninterrupted, right away across the meadows, to Muswell Hill, with the Lordship-road Reservoir, like a silvery mirror, intervening; and the view is the prettiest and most open of any I know of so near to town.

The plan, No. 1, represents the garden, as it stood when the tenant took possession lately. Its actual condition then it is impossible to describe, for from one end to the other it was a perfect ruin. In length it lies south-east and north-west, but to simplify the plan, I have marked the four boundaries S. W. N. E. From the front wall, at S, to the rear fence, at N, the measurement is 280 feet. Its width varies from 35 to 38 feet. The superficial extent may be reckoned at about a quarter of an acre, and the plans are on a scale of 38½ feet to the inch, or thereabouts. Looking at plan No. 1, it will be seen that a large space on the north side of the house is laid out in turf, with a winding walk, and fruit trees. The front of the house is on this side, the entrance being at the back, on the south side from the gate, at S. Beginning, then, from this entrance gate, we have, as we enter, a picture of a wilderness in little. The walk up to the house, and on through the extent of the garden, is four feet six inches wide. From the entrance gate, as far as *a*, adjoining the hall door, it is edged with dwarf box, and the same round the large bed, as far as *b*, where there is a cistern, which the previous tenant constructed;—it is of wood, sunk to the level of the ground, and is supplied direct from the main, with a ball-cock to regulate the flow. This cistern strikes the eye as an object it would be most desirable to get rid of, and as the box-edging is delapidated, and the borders, *c*, *d*, are glorious examples of confusion, the *entrée* is lamentably dreary. To make it worse, the narrow space under the window, *e*, is completely blocked up with delapidated lilacs, laurels, and aucubas,


2
Wall
W
Fence
h
d
a
f
g
Jurf
p
R
Green House
House
S
3.
c
e
b
V
X
i
Jurf
p
R
k
n
u
N
E z
35 ft
House
30 ft
280 ft
1.

all of huge size, very wild, very dingy, and nearly dead. The other side, *d*, is filled up with a mixture of lilac, elderberry, lime, and evergreens, all mixed together, as if they had been originally *thrown* there, and had taken root as they fell, all in a lump. From *a* to *f* is a continuation of the border, with not a leaf to cover it, backed by the high wall of the stable next door. Then going on to *g*, the garden suddenly becomes pretty, even in its ruin, for at this point there are two or three picturesque apple trees, some tree box, and mixed shrub. The fence, from this point, as far as *h*, is covered with ivy, of many years' growth, and on the east side of the path, there are three old orchard trees, *i*,*i*,*i*, the first next the house being a New-town Pippin, the next a Swan's-egg pear, and the next a Golden Knob. Then at *k*, *k*, *k*, *k*, are four more apple trees, of fine growth. In plan, No. 1, the turf extends as far as the first pair of these trees, *k k*, and behind them, next the fence, on each side, are a couple of magnificent aucubas. Now, as there is a good sprinkling of shrub along the borders, and a considerable space of turf, the view from the drawing-room windows, looking north along the extent of the garden, is of a very rustic character. It has fullness, for everything is old, and the apple trees are mostly twisted and bent a bit; and as there is no interruption to the view, and the neighbouring gardens abound with fine, deciduous trees, the scene is as truly "countrified" as one can expect anywhere within a sixpenny ride of the Bank.

The good and bad conditions are pretty equally balanced. Good turf, good fruit trees, deep rich loam, and a very pure air, in which roses thrive. On the other hand, a clay sub-soil, the lower part, at *n*, completely waterlogged, and the gnarled, Hawthornden apple tree, at *m*, going to ruin, through having got its roots into the water, and everything, from one end to the other, showing evidences of many years' neglect.

Now, a garden ought to be beautiful every day in the year, and in laying out or improving a piece of ground, its appearance, every future winter and spring, must be thought of, and hence, you cannot get far without plenty of evergreens and bulbs. Then, to make a blaze from May to October, you want room for bedding plants; to keep your borders gay, you want a reserve plot, and a space for a few frames, and a cold pit; and to complete the commissariat, and ensure stock, a greenhouse must be added. After this, you can enlarge your plans as you please; a stove, an orchard-house, a forcing-pit, a conservatory, and other such things are very delightful, if you have room for them, and if your heart is in your work, you will manage to have them, even if they are piled one on the other, or economically blended into one. But here we are dealing with a little garden on the skirts of the town, and for one of the dimensions here figured, we want to stock the ground with as much as it will hold; we want variety, and, as far as possible, we must preserve consistency and harmony of arrangement.

Now, the object sought in rearranging this garden, was, to make the most of all its good points, and to introduce a few pleasing features, at the least possible sacrifice of the fruit trees and other established characteristics of the ground. Everything about the ground is old and picturesque, therefore, high style is here out of the question, and the only place for anything of an artistic character, is the little fore-court, measuring some five-and-thirty feet square; and as the house on this S. side is stuccoed, and the steps down from the hall as imposing as it is possible for them to be in a small villa, it was determined here to make a pretty arrangement of shrubs, masonry, and flowers. For the present we will deal only with the garden proper, and referring to the plans, let me say, that No. 1 shows its original condition, No. 2 its altered state, and No. 3 is a key to both. The first thing done, was to trench up the piece *n*, which had been used as kitchen garden, and had never had a spade in it more than eight inches deep. A trench was then cut along it, next the path, right away to the ditch, *o*, and a row

of two-inch pipes laid down, to drain it into the ditch, which was widened and deepened to improve the fall. An open water-course was then cut along the fence, from *l*, to the ditch, *o*, and the piece, *n*, was planted with three rows of bush fruits; raspberries next the trench, *l*, then a row of black currants, and in front of these, nearest the walk, a row of gooseberries. A May Duke and an Elton cherry were added in a line with the two apple trees; they were planted on hard platforms, and the holes filled in with loam and turf.

The other side of the walk, where there is a pair of apple trees, was already stocked with old red currants, very much grown together. These were merely thinned and pruned, but next year they will be grubbed up, and the piece replanted. The next thing was to lay out a piece for roses, which thrive everywhere about Stoke Newington; the turf was removed from the two sides of the bed, marked *R*, the ground trenched and manured, the central bed enlarged, and a couple of Chinas, with immense heads, that stood originally at *q q*, and which had long been out of the perpendicular, were taken up, pruned head and foot, and cleared of suckers, and planted at *s s*, and their places supplied with a pair of standard Duchess of Sutherland's. Some climbing roses were then planted on each border, at *t*; and in the spring these will be trained over an arch, across the path. The central bed is planted with dwarf hybrid perpetuals, with a standard white rose in the centre. The border round each way, from *s* to *q*, is also planted with roses in three rows, as to heights, with standards and tall growing dwarfs towards the fence, where spaces are left for some hollyhocks to tower up above them on each side. At *p p*, a pair of pillar roses completes this part of the plan. From the windows and along the path, the view will in future be very gay, and with the large evergreens, at *l l*, the arch at *t*, and the pair of standard Chinas at *s s*, will be pretty well shut in, as a scene distinct in itself. On the west side, between the rosary and the house, the trees were found to be fit only for fire-wood, and, excepting one nice Blenheim, down they came, for the admission of sunlight from the south-west side. The turf will not be disturbed further, except for half-a-dozen pincushion beds for standard roses and bedding plants, and the three fanciful beds on plan 1, will be turfed over and extinguished, for though these do not look amiss on paper, they have a most ungainly and cockney sort of appearance at present, and so their days are numbered. In spring, the border, *a, f, g*, will be planted with the best evergreens, in groups, and with a selection of showy, herbaceous perennials.

Now, from the front windows, looking north, the view consists of a low, ivied fence to the left, above which tower some fine acacias, elms, and maples in the adjoining gardens, so that until you have really examined the details, the garden that way seems of boundless extent, for the eye readily scales the green fence, and rests on the intermixture of branches beyond it. Then, in front, there is a winding path, quite of a piece with the turf and the old trees; and looking forward, there is just enough of picturesque confusion, and yet a clear view for at least two-thirds of the entire length—in fact, as far as the bee-house, *u*. In that direction, the garden blends itself with the meadows beyond, the rear fence being old privet, and not a stick of woodwork or paling visible. On the right hand, *E*, the boundary, is another hedge of mixed privet, elm, lime, etc., with a fine fir tree breaking the straight line at *z*, so that though closely bounded, the boundaries are green, and every way the picture is agreeable.

Now, the way to spoil this garden would be, to adopt precise forms, and introduce a few bits of very white statuary. Everything about it is rustic, and the bee-house, at *u*, is of rustic wood-work, with a thatched roof, so that rustic baskets will come in very fitly to stand about on the turf. To make the border, *v*, next the house, as gay as possible, without verbenas and geraniums, the old aucubas, that

blocked up the windows, have been moved, and the border planted with roses, and rhododendrons, and fuschias, and herbaceous perennials, such as delphiniums, phloxes, aquilegias, etc. The large bed, *x*, which measures fourteen feet across, will remain as it is for the present, and in May it will be planted with fuschias. My own opinion of it is, that it is too large ever to look proportionate; but we shall see. At *g*, there will be a rockery, with abronias and showy trailers; at *y*, another, with ferns and alpines; at *a*, under the shadow of a fine lime tree, which stands like a sentry beside the doorway, there will be another, not visible from the gate entrance, and, therefore, between *g* and *a*, the wall, at present bare, is to be covered with ivy, Virginian creeper, and Stauntonia latifolia, the latter intended to run to the top in no time. The border will be planted with deciduous trees and evergreens; the trees at *f*, to be cut down and grubbed up, and their places supplied with birch, holly, and rhododendrons, with the choicest perennials in front.

Across the path, at the corner, *f*, it is intended to carry a wire arch, to be covered with *Aristolochia sipho*, one of the most lovely of deciduous climbers. The wide border, *d*, will be wholly replanted before this month is out, the back ground with deciduous trees, to hide the wall and all beyond it; and the front, next the path, with a selection of showy evergreens, with a breadth of two feet, for specimen geraniums and fuchsias. The space, *c*, now green and sour, and sprinkled with half perished roses and snowberries, will be left till April, then all the rubbish that blocks up the window, and the dark corner over the cistern, will be rooted up and burnt, the soil removed, and concrete laid down to form a large space of gravel for a *jardinet* and a set of flower boxes. The box edging will be moved to edge the path from the rosary to the ditch, and its place supplied along the whole line, bounding *d*, and the new line, bounding *b*, with edging tiles. The border, *b*, is for the choicest flowering shrubs, or for very fine specimen geraniums, though there is room but for a few. The wall here is well ivied, and the gate guarded by a pair of horse chestnuts.

This forecourt is, however, so distinct a thing in itself, that I shall wait till it is planted, and then describe it with the help of a figure. I believe it will prove a model worthy of attention by every possessor of a town plot; but we had better wait a bit and see. A few other points require mention, and we may leave our friend to pursue his agreeable task. At the corner between the drawing-room and the hall, there is a space of gravel and bare walls; here a greenhouse is to be erected, and as the space measures only 7 feet by 7, the house will be carried forward two or three feet more towards the grass-plot. At the lower end the ditch, *o*, and the water-courses have been put into regular order, and a cistern constructed at the bend of the path near the bottom, to receive the drainage from the underground pipes. This is to save the trouble of carrying water from the cistern in the forecourt for watering the roses in summer time. From the cistern to the trench at *m*, a narrow path is formed of coal-ashes on a bottom of rubbish, and here a three-light pit will be built to face the north, with another narrow path of ashes in front, and then a row of American Cranberries in a trench parallel with the ditch, to turn to good account the wettest part of the garden. The situation of the pit is not a happy one, on account of the excessive dampness of the spot, but my friend says he'll have it as dry as a bone before next winter; and the chief of the water will be carried down to the extreme N. E. corner. On both sides of the garden at this lower part, there is a space of bare fence. On the east side a narrow border will be formed on a raised platform of lime rubbish, and a rustic shed, built partly for ornament, and partly as a potting and tool house. On the other side at *h*, the fence is to be covered with morello cherries, and in the border in front of them a good place will be found for herbaceous plants that love shade, and between it and the narrow path, a bed of ashes for

plunging plants in pots. Many would rail off the whole of this lower piece, and build a duckhouse at *m*, and that would be a good way of turning the water to account, for there are no means of getting rid of it entirely.

TYSO ON THE RANUNCULUS.

It is impossible ever to think of either the Ranunculus or the Anemone, without at the same time connecting them with Mr. Tyso of Wallingford, Berks, who has long been the leading grower of these lovely flowers, and to whom we are indebted for many of the splendid seedlings which of late years have brought these flowers to such a high perfection. Many years ago, Mr. Tyso published a little pamphlet on the cultivation of his favourite flower, and this having been long out of print, is now reproduced by him with such additions and improvements as his ripe experience suggested. It is published by the author, and may be had direct from him for seven postage stamps.* For the benefit of such of our readers as may be about to plant this month, we subjoin the following instructions, premising that the soil for the Ranunculus should be a rich hazelly loam.

PREPARATION OF THE BEDS.

Having chosen an open but not exposed part of the garden, which will admit of the beds being laid down about east and west, remove the earth fifteen inches deep, and from three feet to three feet four inches wide, and fill the bed with the prepared compost, to within two inches of the surface; leave it thus for a month, and then add the reserved top soil. These operations are best done in autumn, that time may be allowed for the earth to settle. Another method, where the sub-soil is light and very porous, may be adopted. Excavate the bed fifteen inches deep, lay in the bottom three inches of mingled manure and loam, and then saturate it with manure water. Cow-dung, well stirred in water, will answer the purpose. Next add three inches more of compost, and saturate that layer; proceed to add two more similar layers, making a foot deep in the whole, and, after a week's settling, add three inches of good healthy pulverized loam, with but little manure, in which to plant the tubers.

The surface of the beds should be level, and not more than an inch higher than the paths, in order that the roots may be kept regularly cool and moist; and, as the ranunculus thrives on a *firm bottom*, the compost should not be disturbed at the time of planting, more than is just needful for that operation. During winter the surface may be pointed up rough, to take the benefit of frosts, but in no case should this be done more than two inches deep. The beds may be neatly edged with inch boards painted lead colour, and, in case named sorts are planted, should be numbered with white paint to correspond with the numbers entered in the Amateur's list. As a bed well constructed at the commencement will admit of several successive plantings, with an annual addition of fertilizing materials, it is worthy of the particular care of the cultivator, though the preparation at first may involve some little trouble and expense.

PLANTING.

The best season for general planting is the last fortnight in February—the plants have not then to contend with the severities of the winter. In some favourable seasons roots may be planted with advantage in October; they will have more time to vegetate, and establish themselves; will make stronger plants, and will bloom more vigorously, and about a fortnight earlier than if planted in spring. Considerable hazard, however, attends autumn planting, and it is not recommended, except by way of experiment, to those who possess a large stock, and can afford to risk a portion.

In fine weather, towards the close of February, rake your beds perfectly level, and divide them into six longitudinal rows for mixed roots, allowing four inches from the outside row to the edge; or for named sorts, mark your rows transversely at distances of five inches asunder, and plant six roots in a transverse row.

Draw drills with a small hoe one inch and a half deep, and plant the roots with the claws downwards, with pressure to secure firmly in the soil, so as to be one inch and a half from the crowns to the surface.

When planting on a small scale, a dibble with a shoulder at the precise depth may be used; but in large quantities it is an inconvenient method, and planting at the bottom

* "The Ranunculus: how to grow it, &c." By Carey Tyso, Florist, &c., Wallingford, Berks.

of a drill with moderate pressure, and without disturbing the subsoil, is attended with similar advantages to the use of a dibble, and in practice will be found to have some points of preference. If the top soil is light after planting, it may be gently beaten with the back of the spade; this operation, however, must be only done in dry weather, and may be repeated just before the plants come up.

PROFITABLE GARDENING.

CHAPTER II.—EDGINGS AND PERMANENT PLANTING.

Now the garden will be in skeleton. The next thing is to determine on the edging, for without some kind of edging a kitchen garden has an untidy look, and I hold it incumbent on the diligent gardener to preserve neatness and order, as one of the elements of success. The eye is not to be annoyed because the garden is devoted to mere eatables. Strawberries are often reccommended as a fit edging for a kitchen garden. Many would like a border of flowers and box edgings, and a very pretty arrangement this is. Daisies, hepaticas, parsley, and even lettuces are used as edgings, just to mark the line occasionally; but to give a neat finish, and preserve a clean line on each side of the walk, there is nothing like stone or tile. In some districts the mere carting and putting down, is the whole expense that attends the use of stone, but in the neighbourhood of London every kind of stone work is expensive, but a tile that will last for ever, and look as well as stone, may be had at one third less the price of dwarf box, and that is the one invented by Mr. Hogg, and sold under patent by Mr. Blackett, of Witham, Essex. I have put down a quantity of these lately, and, from their clean appearance, durability, and the firm support they give the walk, even when the spade comes near them, I should like to see them very extentensively used. They cost 4½d. a yard only, and serve to drain the path and border, as well as forming a strong edging that will last for ever. Any amateur, or unskilled labourer can lay them down, and that is an additional item in their favour. I lately put down two hundred before dinner, on a broiling hot day, and in a curved path, where the gravel had been rolled as hard as flint, so if a thousand or two are wanted, no one need fear the task of placing them.* The annexed cut shows a mode of using bricks as an edging; it is cheap and effective.

In the planting of such a garden as we are considering, the stock will naturally assort itself into two great divisions; namely, those that are to occupy the ground permanently, and those that shift and change, appear and disappear, according to the seasons. Among the first, fruits have the first importance, and unless there is a good open space, in which justice may be done to all things, it is better not to grow fruits at all. But to have a little of everything should be the motto; and a very good plan of growing fruits in such a garden, is, to have plenty of bush fruits, and espalier apples, pears, plums, and cherries, bordering the inner plot, next the walk all round. The walls offer sites for fruits of higher class—peach, apricot, grape, and cherry—and by having none but *trained* trees, except, perhaps, an occasional standard, in a good spot, to diversify the scene, very heavy crops may be taken, without shading the ground at all; indeed, such shade as espaliers produce, will be found very useful for many crops that need shelter from the full blaze of the sun in summer. Have a lot of

* The manufacture of these tiles has been discontinued. Any plasterer would mould an edging of Portland cement to any pattern. Messrs. Bazley, White and Co., of Millbank, exhibited a neatly-moulded tile at Chiswick, last June, the object being to show the applicability of Portland cement for such a purpose. The tile exhibited was, we believe, moulded by Mr. G. Spurway, Tufton, Westminster, who would supply them in quantity, at 6d. per foot run.—Ed.

huge orchard trees, and at once give up all idea of crops beneath them. The digging and dressing of the ground will ruin the trees, and the trees will "draw" everything beneath them; but set out your espaliers, and every tree is reduced to a flat surface, easily managed, creating little shadow, and occupying the smallest possible amount of room. These trees ought to be two feet from the edging, and twenty feet apart, and between every two trees there will be room for three gooseberry, currant, or raspberry bushes, but these ought to be set back one foot farther from the walk, on account of their spreading nature. But unless the circumstances are very favourable, it is better to have bush fruits only, for they thrive on any soil, are easily managed, and are the most serviceable of any for family purposes. Where there is a central or divisional walk in a kitchen garden, espalier trees and bush fruits may be planted on each side. Apple and pear are always the best for such a mode of culture, because they can be trained in any way, but stone fruits are difficult to manage so, on account of the abundance of young wood they produce if the knife is used to them at all freely. A central walk arched over with rough open timber lattice, and a row of apple or pear trees planted on each side, and trained over, is a very pretty ornament to a profitable garden, and one that pays well in its produce, because the fruit is well exposed, easily managed, and it wants but little skill to build "the bower" in the first instance. It should be high enough for a tall man to pass along with his hat on, and some good eating apples should be found in some part of it for the enjoyment of visitors.

The other kinds of permanent stock are such things as strawberries, rhubarb, seakale, asparagus, &c.; all these should be in one quarter, properly divided from each other, and should have a good aspect; indeed, asparagus ought to have the best bit of ground you have, for it is a most valuable thing, and if not wanted for your own table, will, if well grown, find a ready market at a paying price. I have already remarked that I am quite mindful of the various circumstances under which gardening may be pursued by the readers of this work;—climate, soil, situation, the shape, extent, and otherwise of the ground, may render it impossible to adopt the scheme I propose in every case, for every garden must be considered on its own merits; still, in every alteration, it is well to know what is the best end to aim at, what is the most advantageous way of gaining space, and making the best of every square inch of surface; and as most people find their gardens ready made for them in some measure, it is only to a certain extent that they can avail themselves of the suggestions here offered. But there are few places but are capable of improvement, and I have laid down a plan which may be safely followed under the greatest variety of circumstances, either in improving an old garden, or laying out a new one. In an allotment plot, a regular plan is quite out of the question, but a systematic mode of cropping is very necessary, and to that we shall come presently.

But we will not pass from this mention of old gardens, without just a word or two. The best time to "move," as regards gardening, is at Michaelmas, because then you have the whole season before you for every kind of tree and shrub planting, and for alterations of all kinds. At this time, too, you can look over the ground, and ascertain exactly what it contains, for herbaceous things will not have quite died down, and most of the trees being in foliage—some, indeed, in fruit—will indicate their respective characters and values. Determine as soon as you can, how much of the stock deserves to be preserved, and how much is to be destroyed, but be not in haste to annihilate anything. If the bushes are old and straggling, take up the worst and trim them to one good stem, and replant in order; prune soon after the fall of the leaf, whatever may require it, and set in clean order any patches of strawberry, seakale, asparagus, rhubarb, &c., that may prove useful the next season, and as soon as the proper time arrives, secure new stock of such things as seem to be worn out;

take good cuttings from the bush fruits, set out new rows of asparagus and seakale, and do not get rid of any except the evidently worthless stuff, until you have new to take its place. Remember the laundresses' motto, about "throwing away dirty water." The next thing to look to, is the drainage and walks, and the winter storms will soon enable you to judge if the ground needs help to get rid of superfluous water. Where the soil remains damp, and sour, and soddened after rain, no good can be effected in any kind of gardening. Then, as to the walks, see that they are conveniently disposed, and if you mean to alter them, do it at once; put down a good rough bottom, and wait till spring before you give them a final coat of gravel, for there will be much heavy wheeling, and this will settle the new foundation; but if they are gravelled at once, the barrow will cut them to pieces speedily. But the working soil should be the subject of chief attention. Ten to one, it has never been dug more than one spit deep; the top may have been well manured or cropped to death, but it is almost certain that as to digging, it has merely been played with. Here, then, is a field for your energies; use the pick, the fork, the spade in earnest; ridge up every bit of it that is not occupied; be careful not to go too near the roots of trees, but make up your mind that daylight and fresh air shall make acquaintance with that hard, impervious stuff that lies just ten or twelve inches below the surface.

It seems almost idle to say anything as to the proportions of ground to be allotted to various kinds of crops, because the wants of families and the tastes of individuals differ so much. As a general rule, however, where there is ample space for growing everything, one half will not be too much to assign to permanent standing crops of all kinds. Say one sixth for fruits generally, another sixth for raspberries, and another for strawberries; another sixth for seakale, rhubarb, artichokes, and asparagus—the latter deserving quite a twelfth of the whole ground, on account of its high value, whether for home consumption or market. The other half is for routine cropping, as potatoes, cabbage, turnips, and the various other things that come in regular rotation, the culture of which will be described in future chapters.

FEBRUARY WORK IN THE GARDEN AND GREENHOUSE.

We have had some beneficial frosts, and those who "took time by the forelock," and got their shrubs planted before Christmas, have the advantage of the two months' rooting they have made since; for newly planted trees and shrubs work vigorously underground, however hard it may be freezing on the surface, and, if well mulched, produce immense masses of fibres before spring. There is still time, however, in the intervals between frosts and rains, to complete planting, and alterations. Finish fruits and roses before you move a single evergreen; and in filling in the holes, take care not to throw in any frozen soil or snow, which would do great injury to the roots, and, for a long time, keep the trees back. Indeed, if the soil used contains a little fibrous matter, not quite decayed, the stirring will cause a slight fermentation, the warmth of which will promote a vigorous root action. Plant firmly. Put stakes to such things as are likely to be shaken by March winds, and, in all cases, plant not quite so deep as before—certainly, not an inch deeper. Go over orchard trees, prune where necessary, and scrub, with a brush dipped in strong brine, any that were affected with American blight last year. During open weather, edgings of all sorts may now be made, both live and dead; new beds may be prepared, and the borders forked, to sweeten the soil, before new perennials are planted. During frosty weather, wheel out manure on kitchen plots and allotments, char rubbish, get in clinkers, or flints, for rockwork, and complete any other jobs that necessitate wheeling, as the barrow does less harm when the ground is frozen.

Look over the stock of seeds, and determine what will be required for this season's sowing, and, in good time, fix upon the style and method of bedding-out you will pursue, so as to raise stock for the purpose, for the season of propagating is now at hand, and for the next two or three months, the chief work of the whole ensuing season will have to be got through.

Kitchen Garden.—Sow the main crops of peas and beans at the first favourable opportunity; a few of the earliest sorts, on well-drained slopes, facing the south, to come on quick; or, if a small successional supply is required, get in a few rows of the earliest sorts of each, and sow again as soon as the first come up, and so on, to the end of March. Sow spinach between the rows of peas. A little of everything in the edible way may be got in now in good positions—small sowings of Cabbage, Brussels Sprouts, Carrots, Turnips, Parsley, Radishes, and Lettuce, but the main sowings of most things should be deferred. Get one pan of celery forward in heat, and some lettuces for planting out. Where ground in good heart was ridged up over winter for potatoes, the whole may be planted now. Trench them in, in preference to using the dibber; but if the weather should be wet, or the ground frozen, get in a few early sorts only, and also some early kidneys in frames, for the first supply. Prepare, by trenching and manuring, the plots intended for sea kale and asparagus next month. Turn out potted cauliflower plants on well manured stations, four plants under each hand-light, choosing a very sheltered position. Edgings and plantations of strawberries may now be made, and old beds must be dressed. Prune and tie raspberries, leaving but three or four shortened canes to each stool. Heap half-rotten dung over the old stools of rhubarb, to promote early production.

Flower Garden.—The old directions for sowing hardy annuals and perennials in February, do not altogether suit our seasons of late, and it is seldom advisable to sow any before March, except in frames, and hot-beds; but, with artificial heat, sowings of most things may now be made, both for blooming in pots in the greenhouse and conservatory, and for turning out into beds and borders. Do not forget *Phlox Drummondii*, *Delphinium formosum*, cinerarias, Chinese primroses, stocks, asters, auriculas, and balsams, for all of which a moderate heat is sufficient. Most perennials, and even Chrysanthemums and Dahlias, sown now, and hardened off as soon as pricked out, will flower the present season. Top-dress auriculas, polyanthuses, and pinks, if not done last month, and make up dung-beds for propagating, as the demand for bedding stock is frequently greater than the room devoted to wintering them can supply. Soft-wooded, and free growing plants may be multiplied rapidly with the help of a frame. Fill up to within twelve inches of the glass with dung that has been previously turned, to remove its rankness, and upon it spread four inches of dry sandy soil, and put in the cuttings as fast as the plants supply them.

Greenhouse.—The stock here will now be starting into spring growth, and though air must be given as much as possible, cold draughts and frosts must be guarded against, as during this month, most greenhouse plants are more susceptible of cold than at any other period of the year. Shift such things as require it; see to the drainage of plants well established; give water pretty freely to such as are making free growth; azaleas and camellias must have plenty. Camellias done blooming should be put into a temperature averaging 65 degs., with a moist atmosphere, and partial shade, by means of tiffany, or canvas, over the glass, to promote the growth of new wood. Epacrises, correas, leschenaultias, polygalas, &c., should have a little extra warmth, and be brought into free growth for flowering; the latter like a little old mortar mixed with the peat in potting them. Houses devoted to collections of plants should now be carefully looked over, as some things may be doing badly, owing to too low a temperature, while others may require it to be reduced. A free increase of fire-heat for a few hours at

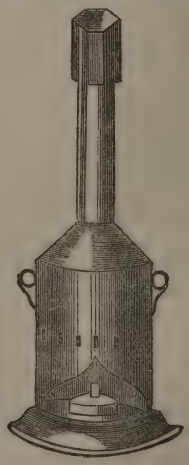
mid-day, sinking to the old point at night, is sometimes advisable, to keep mixed collections healthy; and in the arrangement of the stock, orchids and New Holland plants, and exotic bulbs, should be placed at the warmest end; pelargoniums, calceolarias, and cinerarias, intermediate; and ericas at the coolest, with a free circulation of air. Put *Deutzia scabia*, *Weigelea rosea*, and *Forsythia viridissima*, into moderate heat to bloom well, and they will make a beautiful display for some time to come. Look out sharp for green fly and red spider, and fumigate with sulphur and tobacco, as may be necessary. Average temperature this month:—45 degs. at night; 50 to 55 degs. by day, with a rise of 5 degs. more with sun-heat.

Stove.—Pines should be kept at a moderate bottom-heat, or many may fruit prematurely; from 85 to 90 degs. will be quite sufficient: anything beyond 90 is a positive injury to them. In houses where vines are in leaf, air must be given at every opportunity, but with great caution. Beware undue heat at night; it is better to let the temperature sink a few degrees on sharp nights, than to drive the vines on in an unhealthy air, which is a frequent cause of failure in setting and ripening. Keep evaporating pans at work where syringing would be inadvisable, to keep down spider.

In the Forcing Pit keep the thermometer at 80 degs. for bottom-heat, and on sunny days, increase the atmospheric heat to the same point for an hour or two, to give an opportunity for syringing.

GIDNEY'S GARDEN TOOLS.

The many improvements effected of late years in the implements used in gardening and agriculture, mark, very definitely, the nature of the progress made; for, while there is a tendency to the diminishing of labour, by the introduction of machinery and tools which give full effect to the power employed, there is also a more perfect end attained by them, as witness the deep digging, which has resulted from the use of digging-forks. Mowing machines are fast abolishing the slow work of the scythe; while, for those who still depend upon it, we have the self-adjusting scythes of Boyd and Anthony, which may readily be set to any angle, while the poor man's scythe proves itself a welcome friend to the cottager, and the amateur of the most humble means. For the general routine of gardening work, the improved tools manufactured by Messrs. Gidney, of East Dereham, Norfolk, commend themselves to the entire gardening world, for their simplicity and efficiency. They are not mere deviations from old-fashioned models, but real helps to the diligent hand, constructed with an intelligent view to the nature of the work to be performed by them. Gidney's Improved Prussian Hoes not only cut and destroy the weeds, but leaves the ground perfectly level, without the use of the rake. In the Horizontal Hoe, the blade is set at the same angle, and cuts up the weeds, without destroying the evenness of the ground. The Norfolk Hoe is fastened to the handle by a strong ferrule, so made that it is impossible for it to become loose. The Improved Garden Rakes are peculiarly adapted for ladies' use, being lighter, and yet stronger, than the common rake.



Gidney's Self-Acting Fumigator

entirely obviates the unpleasantness of contact with the smoke, as it merely requires lighting, and it performs the operation, delivering the smoke in a dense body, without further attention; a result which no other fumigator attains, without constant blowing.

These implements are sold at the prices ordinarily charged for the old-fashioned ones in common use, and may be had direct from the makers; or of Messrs. Burgess and Key; or Messrs. Dray and Co., London.

STRAWBERRY PLANTS AS EDGINGS.

Hautbois, and particularly the Red and White Alpines, are very suitable for edgings to alleys, and even to the principal walks in the fruit and kitchen gardens. They combine beauty and utility in no ordinary degree. Such edgings need no more attention than those of box, and they certainly make a better return. I have also used the stronger growing kinds with advantage. They may be planted from four to eight inches apart, and well manured. An objection may be urged, on the ground that such edgings do not keep the soil from the walks; but the borders need not be higher than the walks, and box, and other edgings, are liable to the same objections. I have tried them for many situations, and am satisfied of their efficiency, profit, and general adaptation. In autumn, I have made use of Alpine strawberries in fruit, to aid in giving character to the flower-glasses, vases, &c., when flowers were scanty. Groups of artificial fruits, as well as flowers, are not void of charms, when appropriately situated, and arranged.—*McEwen on Strawberry Culture.*

TO CORRESPONDENTS.

To Dry Flowers.—*N. K.*—The easiest to begin with, are yellow flowers, as they retain the colours best. Spread them as flat as possible, and without altering their natural forms, on clean dry blotting-paper. Cover them with three or four thicknesses of the same, and apply a very slight weight to flatten them gradually without rupture of the vessels. After five or six hours, take other sheets of new blotting-paper and warm them at the fire, and while they are warm change the flowers into them: apply more pressure than before. Let them remain till the next day, and change again in the same way, and you will have them perfectly dried and the colours beautifully preserved. Blue are more difficult. Proceed in the same way, and at the first change cover the blotting-paper with two thicknesses of flannel, and apply a moderately hot iron to hasten the drying process. We have dried all sorts of flowers with a tenth part of the trouble, by merely placing them between blotting-paper in a book, and piling a few other books on it, but only those of thin texture and that do not abound in sap, can be treated in so slight a way. In all cases, *dry quick;* never crush the stems or cause the juices to exude, and avoid laying one leaf on another, which causes discoloration. Detailed instructions, including directions for drying fungi, without destroying their shape, may be found in "Brambles and Bay Leaves," published by Longmans.

Striking Ivy.—*R. G.*—Ivy should not be struck where it is to remain. It is better to strike it in very sandy loam, and transplant when well rooted. It will strike all the summer, but most readily in spring. Leave your ivy alone for a month or six weeks at least for the present.

Phloxes.—*R. Burnley.*—Take Abbé Boy, Amatissima, Annie Salter, Countess of Home, Emilie Mehl, May Queen, Mdlle. Ermine Lamble, Muta, Princess de Wagram, Socrates, Virgo, and Louis Ricarde, and you will have a splendid dozen, none of them too tall for your purpose. Candidissima nova and umbellata are beauties for bedding, very early and dwarf. We do not recommend dealers.

Annuals.—*Bob.*—In our opinion nothing is gained by sowing annuals out of doors in February. Wait another month, and we will give you some hints. You may sow now in a Waltonian Case, or dung pit, any annuals intended for bedding out. We have not yet seen a bed of Veronica syriaca, which was let out by Henderson's last year. We should not hesitate to try it in the position you mention.

Eugenia Ugni.—*A. L. P.*—This is a myrtle, and must be treated as such. Good rich loam suits it, plenty of pot room, and exposure to sun and rain, from April to October. When grown under glass, it blossoms in Spring, and ripens its fruit early in Autumn. The chief difficulty is to get the fruit of a good colour—those exhibited at Willis's Rooms last October, were generally poor as to colour. The flavour is delicious. All the myrtles produce edible fruits.

Pomegranates in Pots.—*Buxin.*—You give too much water, and get too much young wood. Bring your plants into growth in April; in May, turn them out on a south border, water regularly till August, and then let the sun *burn* them as long as it has power to do so, giving only just enough water to keep them alive, and you will not complain of shyness in blooming the next season.

EVERGREENS FOR A BALCONY.—*Henry.*—Six hardy and good, Laurus nobilis, Viburnum tinus, Cotoneaster mycrophylla, Buxus sempervirens, Andromeda floribunda, Gaultheria shallon; to these may be added Rhododendrons, Azaleas and Kalmias in pairs. Daphne odora and cneorum, Ceanothus azureus, and Desfontania spinosa, are lovely dwarf evergreens, that need a little protection in winter, though, in the climate of London, we have had them winter out of doors safely along with old myrtles.

P. F.—Leyland.—Can't do it at the price.—*H. G.*—Bristol.—Yes, write, direct to Messrs. Groombridge.—GAS HEATING.—*F. J. L.*—Thanks. Our readers shall profit by your kind communication. —SETTING VINES.—*Amateur.*—Your queries are so vague, we find it impossible to answer them. What heat can you command? How were the vines treated last year, and when do you break them? We cannot give particular answers to general queries, though willing to oblige whenever we know, definitely, what is required of us

WALTONIAN CASE. — This is a small frame heated with an oil lamp and boiler, and of dimensions to suit any ordinary room or greenhouse. It serves all the purposes of a hot-bed for raising seeds, or striking cuttings, and is the best contrivance for propagating an amateur can use. It was figured and described in 'Rustic Adornments.' We believe Mr. Hibberd's figures are the only accurate ones that have been published of the invention as it is now used. You may raise in such a case whatever seeds or cuttings require a heat of from 60 to 90 degs.; the only precaution necessary is to keep the sand always damp. Of course plants cannot be grown on in such a contrivance, which is merely a propagating pit on a small scale, heated by a lamp, instead of pipes or dung.

VARIEGATED PLANTS.—*S. S. G.*—We understand that Mr. Lowe intends shortly to bring out a work on the subject, with coloured figures. It will be published by subscription, at a low figure.

METEOROLOGICAL CALENDAR FOR FEBRUARY.

28 DAYS.		WEATHER NEAR LONDON, FEB. 1857.				28 DAYS.		WEATHER NEAR LONDON, FEB. 1857.			
		BAROMETER.	THERMOM.	WIND.	RAIN			BAROMETER.	THERMOM.	WIND.	RAIN
		MAX. MIN.	MX. MN. MN					MAX. MIN	MX. MN. MN.		
M.	1	29.906—29.853	35 14 24.5	SW	.00	M.	15	30.112—30.066	48 26 37.0	E	·00
Tu	2	29.601—29.512	38 24 31.0	SW	.00	Tu	16	30.073—30.049	55 26 40.5	S	.00
W.	3	29.964—29.641	35 24 29.5	SW	.00	W.	17	29.992—29.966	56 34 45.0	S	.01
Th	4	30.245—30.106	34 13 23.5	E	.00	Th	18	29.999—29.964	55 33 44.0	SW	.00
F.	5	30.146—29.934	42 36 39.0	SW	.14	F.	19	30.145—30.093	48 30 39.0	SW	.01
S.	6	29.875—29.836	49 33 41.0	SW	.01	S.	20	30.180—30.129	52 30 41.0	SW	.01
S.	7	29.783—29.696	45 32 38.5	SW	.00	S.	21	30.278—30.227	55 33 43.0	SW	.00
M.	8	29.651—29.637	38 36 37.0	SW	.02	M.	22	30.255—30.230	55 25 40.0	SW	.00
Tu	9	29.591—29.475	46 35 40.5	S	.06	Tu.	23	30.264—30.230	52 24 38.0	SW	.03
W.	10	29.753—29.642	51 33 42.0	SW	.01	W.	24	30.154—30.039	53 22 37.5	SW	.00
Th	11	30.009—29.821	52 27 39.5	SW	.03	Th.	25	30.280—30.128	42 22 32.0	SW	.03
F.	12	30.348—30.262	50 23 36.5	W	.00	F.	26	30.461—30.451	51 23 37.0	SW	.00
S.	13	30.291—30.262	46 25 35.5	W	.00	S.	27	30.453—30.392	53 29 41.0	SW	.00
S.	14	30.249—30.187	47 22 34.5	W	.01	S.	28	30.498—30.465	59 28 43.5	SW	.00

AVERAGES FOR THE ENSUING MONTH.

THE observations of sixteen years, show the following averages for the month of February :—Max, temperature, 44°; min., 33°; mean, 38½°; so that, as deduced from these observations, the month of February is ½° far warmer than January. During the same period, the average fall of rain has been, 1.5 inches. The highest reading of the Thermometer in the month of February during thirty-one years past, occurred on the 10th, 1831, 65°; and the lowest on the 17th in 1855—2°. A partial eclipse of the Moon will occur on the 27th, at 47m. past 7, evening, visible throughout Great Britain.

PHASES OF THE MOON FOR FEBRUARY, 1858.

☾ Last Quarter, 5th, 9h. 16m. p.m. ● New Moon, 13th, 10h. 12m. p.m.
☽ First Quarter, 20th, 12h 58m. a.m. ○ Full Moon, 27th, 10h. 5m. p.m.

HYBRID ORCHIDS.—Among the memoranda of the horticultural world the certainty that male orchids may be artificially produced is now definitely determined. Under the care of Mr. Dominy, at Messrs. Vietchs' Exotic Nursery, Chelsea, a hybrid Calanthe has been obtained by crossing *C. masuca* with *C. furcata*, and the result is a combination of the best qualities of both, the mule having the lobed lip of furcata and the violet colour of masuca.

MEETINGS AND EXHIBITIONS, FEBRUARY, 1858.

TUESDAY 2nd, Horticultural, Regent-street.—THURSDAY 4th, Pomological, St. Martin's Hall.—SATURDAY 27th, National Floricultural.

*** *Secretaries will oblige by forwarding Announcements, Schedules, &c., of forthcoming Exhibitions.*

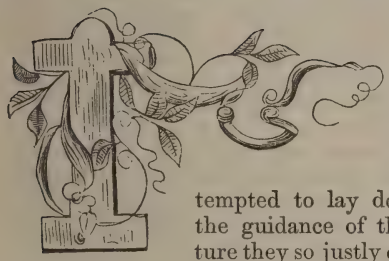
THE

FLORAL WORLD

AND

GARDEN GUIDE.

MARCH, 1858.



N none of the many remarks which have lately appeared in the gardening periodicals on the subject of town gardens, have the writers attempted to lay down anything like definite plans for the guidance of those whose poor attempts at horticulture they so justly characterize as a disgrace to our cities, and more especially so to London, where the public squares, which ought to be examples of how much may be accomplished, are rather examples of the meanness and utter want of taste on the part of those whose duty it is to conserve them. Yet, town gardening has made some substantial progress since the compulsory abolition of the smoke nuisance, and though the public evidences of improvement, as at the Temple Gardens and the Inns of Law, are as striking as they are few, private gardens—not in London and its suburbs only, but in all the towns of the kingdom—have within the last three years undergone many changes. If we can get individuals to take a real interest in their limited town and suburban plots, and to manage them in a sensible and tasteful way, a visible improvement in the public squares is pretty sure to follow; for we are strongly of opinion that, when examples of success are multiplied by private individuals, a general public recognition of the rights of intramural vegetation must speedily take place. Admitting that town atmospheres must still continue to deposit soot, in spite of the most vigilant legislative action, the plentiful distribution of water, by means of suitable engines, all through the summer, is an obvious remedy; but it is still more important to impress upon the possessors of gardens in towns, that virgin soil fresh from the country, to replace or refresh the worn-out, sour, and consolidated black mould usually met with in such spots, would do more towards ensuring a good display of evergreens and flowers than any amount of manure or drenchings of water, as we are convinced that, in the majority of cases, where attempts at gardening in towns are found to be certain recipes for the heart-ache, the money wasted on

manure and new plants would, if appropriated to an entire change of the soil, give to the enterprize as many cheerful features as it had before of gloomy ones. Of course, manuring must be counted as one of the remedial measures—draining, deep digging, trenching, and watering are others; but, above all things, the proper selection of plants for the purpose is the chief secret of success. On reference to the "Town Garden," which is the only work in which this knotty subject has yet been consecutively treated, we find that, so far from the choice of plants being limited, a very extensive assortment is proposed on the basis of the author's own experiences and observations; and a right hearty denunciation is there of the abominable lilacs, firs, and laburnums—excellent things in a good air, but the very bane of our delapidated squares and miserable city gardens. It may be worth something to town folks, who, we regret to say, seldom begin digging or planting till country people have finished, to know that some handsome deciduous trees, as the Oriental Plane, the Tulip Tree, the Hornbeam, the Thorn, the handsomest species of Poplar, the common Ash, Lime, Ontario Poplar, Willow, Birch, Maple, and even the Apple, the Pear, and the Fig, thrive well in London smoke; and the latter even flower and fruit freely where they have been originally well planted, and have a moderate amount of air and sunshine. Among evergreens, who has not many a time wondered at the healthy appearance of Aucubas, Lauristinus, and Rhododendrons, half buried in dark areas; but when we remember that such things do best in the country when partially shaded by trees, it is clear that smoke and ill-treatment are the only real banes they have to fear; and seasonable ablutions are the antidote for the first, and the extensive circulation of the Floral World the antidote for the second. The author of the "Town Garden" says:—"Laburnums and lilacs are grown very much in squares, and in front plots, in all parts of London, but any one may see they are very much out of their element," and in their place he recommends the use of the cheapest and commonest evergreens, especially those just named, with Ivy, Tree-Box, Hollies, and Portugal Laurel; but we would add to his suggestion, that those who may have a fancy for a choice collection may very safely choose from the most expensive of our choicest evergreens, even including the Desfontanias and Berberies, so long as they remember the rule to "avoid all trees which have gummy or resinous exudations, such as firs, larches, &c., for these fail, in consequence of the adherence of the soot to their bark, and the trees, at last, pine and become brown, and then perish through suffocation;" and this observation is borne out by what we see everywhere. Loudon abolished the Conifers from the Squares, and we now want those interested in these valuable properties to show a little liberality in the adoption of such plants as have been proved to be suitable both for effect and the peculiar circumstances under which they are to live.

In the way of flowers, all the best of the bedders (with the exception of Petunias and Salvias) and annuals and hardy perennials (excepting those of the Primula and Violet families) do well, if properly cultivated; and whoever doubts this statement should this next spring and summer pay an occasional visit to the Temple Gardens and see what Mr. Broome and Mr. Dale have accomplished in vindication of London soil and

London air. Individual examples will do much to remove the prejudices that stand in the way of the full development of the capabilities of town atmospheres for supporting many interesting forms of vegetation; but, in regard to the London squares, meanness adds to the impediments of ignorance, and as long as these places are "kept in order" on terms that barely pay for the wearing out of scythes and brooms on the flinty and dingy grass-plots, they must remain a disgrace, the more glaring because usually associated with the substantial residences of the wealthy, who are supposed to be patrons of art and arbitors of taste.

Among the many objects of interest exhibited at the Horticultural Society's meeting on the 2nd, the collection of Hyacinths from Mr. Cutbush, of Highgate, once more attested his success in the cultivation of this best of all our spring flowers. They were amazingly well bloomed, and would not have suffered in any one point, if compared with the best collection of Scottish growth; and, as is well known, the Hyacinth is, generally speaking, much better grown and shown in the north than anywhere else in the kingdom. The sorts shown and recommended for culture next season were the following:—Prince Frederick, a double pale blue kind; Norma, single delicate pink; Tour d'Auvergne, double white; Baron Van Tuyll, single, porcelain blue; Prince Albert, a single, nearly black sort; Mrs. Beecher Stowe, single, rose, with the petals faintly edged with white; William the First, single, deep blue; Anna Maria, double, cream; Grand Vedette, single, large flowered pale blue; Voltaire, single, white; Orondates, single, pale blue; and Pyrene, double, white. Camellias were well shown, and first prizes for them were awarded to E. A Brande, Esq., for six; and to Mr. Glendinning for three, the second prize for three going to Messrs. Chandler, of Vauxhall. Among the winning plants, the only new and little known kinds were *Mathotiona*, shown by both Mr. Brande and Mr. Glendinning; *Targioni*, a white striped with pink, and two beauties brought from China by Mr. Fortune, and respectively named Princess Frederick William and Cup of Beauty—the latter a large cupped white flower, with a tinge of blush, which is sure to become a favourite. Messrs. Jackson, of Kingston, sent a collection of miscellaneous plants, in which were two specimens of Chinese Primrose, viz., the double white and double lilac, and two Orchids, one the East Indian Calanthe curculigoides, with a fine spike of pale salmon flowers, a colour rare among orchids; the other, the pretty Japanese Dendrobium moniliforme. Messrs. E. G. Henderson, of the Wellington Road, sent a plant and cut flowers of Monochætum ensiferum, a profuse blooming and very handsome rosy-flowered greenhouse bush, with small leaves, whose merits are now beginning to be universally recognized. It was introduced from the mountains of Columbia by Mr. Linden, a great Belgian collector of such plants. This will, no doubt, prove a valuable plant for mixed collections, and will probably do well in a greenhouse temperature of 50° in winter. A specimen of *Berberis nepalensis*, with lovely yellow flowers, sent from the gardens of the Society, attracted considerable attention, and was noted by many as one of the best of the new Berberies, especially for conservatory culture. Among the fruits was a splendid basket of Muscat of Alexandria Grapes, possessing the rare golden yellow colour of this variety when in perfection, shown by Mr. Hill, gardener to R. Sneyd, Esq.; along with them were some handsome bunches of Black Hamburgh. Mr. Michell, gardener to Lord Wenlock, sent bunches of Black Barbarossa, in good condition; Mr. Tillyard, gardener to Viscount Eversley, sent two Antigua Queen Pine Apples, a quantity of Ne Plus Meuris and Beurré Rance Pears—the best of our February pears—and a dish of American Cranberries. The following Apples, viz., Court Pendu Plat, large, and finely coloured; Ribston Pippin, Dumelow's Seedling, and three unnamed kinds, were contributed by the gardener to H. O. Nethercote, Esq, Moulton Grange, Northampton.

There were a few implements exhibited; among them Thomson's hot-water apparatus for greenhouses, but the exhibitors did not do justice to their own invention, for neither sectional plan nor description accompanied it. Mr. Smith, of 3, Queen's Road, East Chelsea, exhibited a "tell-tale" flower-pot, which, being made of a pale ware with grey bands, which are dark or light in colour, according as the pots are moist or dry, serve as "tell-tales" to indicate the exact state of the roots of the plant as to the supply of water. Mr. Henderson, of Dunkeld, exhibited his patent brooms for sweeping paths and lawns, the peculiarity of which is that the broom is set in an iron head and kept firm by screws, and the operator sweeps them right and left, so as to throw the grass into ridges on either side of him, taking from 15 to 18 feet wide at a sweep, and thus, in the saving of time, making good the difference of expense between these and the best of common brooms.

A new variety of kale, called "Cottagers' kale," exhibited by Mr. Turner, was the only novelty in the way of vegetables; it is a sort of Brussel's sprouts, but the sprouts open, instead of forming close buttons. Mr. Turner recommends it as a most profitable and delicately-flavoured winter green.

Although the meeting, on the 4th, of the Pomological Society, was one of great interest in consequence of the variety and general excellence—late pears excepted—it lacked the interest it should have had, owing to the absence of competition for the prize offered by Mr. Scrutton for the best six dishes of Pears. Mr. J. Allport, gardener to H. Ackroyd, Esq., of Nantwich, Cheshire, was the only exhibitor for the prize, and the collection not being deemed worthy of it, the award was deferred to the 4th of March.

PLANTS TO GROW UNDER THE DRIP OF TREES.

The following bear the drip of trees well, and are excellent for ornamental planting in positions where most other things would fail for want of more free exposure :—

Berberis aquifolium.
" Asiatica.
" Japonica.
Buxus sempervirens, and all its varieties, except suffruticosa
" Chinensis.
Ligustrum Japonicum.
" lucidum.
" sempervirens, and all the varieties of the common privet.
Rubus discolor.
Rubus radula.
cœsius fol. var.
" fruticosus flore pleno, and all the varieties of the common bramble.
Taxus Canadensis.
" baccata fol. var., and all the varieties of the common yew.
Hypericum elatior.
" calycinum.
" kalmianum.
Cornus sanguinea.
" mascula variegata.
" sempervirens.
Juniperus communis
Hollies. All the Varieties of the common Ivy, Periwinkle and tussock grass.

CLIMBERS FOR A WEST WALL.

Japan Honeysuckle.

Cotoneaster mycrophylla.

Magnolia grandiflora, in sheltered localities.

ROSES.

Félicité Perpètuelle, Renoncule, Noisettes, *Eccremocarpus scabra.* (Should be renewed when seven years old.)

Jasminum nudiflorum (to be moved when done flowering, and brought back again to bloom every season in warm positions.)

Passiflora azurea.

Solanum jasminioides (in warm positions; must be close pruned till it blooms freely).

Ceanothus azureus.

Fuchsia Riccartoni (in sheltered positions; but will not stand a severe winter.

Periploca græca.

A SELECTION OF ANNUALS.

BUSY times are these for gardening folks, and the Sun's invasion of Aries sets one's blood astir about all sorts of flowery things. An old and valued friend, who never in his life had a spade in his hand, or the name of a flower in his head, has just startled me by asking for advice about annuals. He has given up his city residence, taken a pretty country box, and set up his pony trap, and now he means to do the *rus in urbe*, about which there is such a tremendous talk now-a-days. I always thought it must come to that, for so genial and warm-hearted a man could not go on starving his affections with parchments and precedents; and when he used to spend a few days with me among the gardens and coppices, I could see the shame he suffered at a consciousness of his ignorance of all flowery out-door subjects. Well, he's turned gardener at last; has ceased to take breakfast in bed has taken to a velveteen morning coat, and thick-soled waterproof boots—things that would have made him shudder a year ago, when the height of his ambition was to be a model of a gentleman lawyer, the first dandy of the Inn and the Court. Knowing he had a very intelligent and industrious gardener, I, of course, advised his leaving the matter to him. "But," says he, "Harris is a capital fellow, but I want to know something for myself, for the pleasure attendant on what little knowledge I have already picked up, and the desire to learn more gives a heartier zest to my gardening exploits than any of the visible results do, however successful they may be. Here I see hundreds of annuals and perennials entered in the catalogues, and, though Harris has made me a list, I should like to have a finger in the pie, and know beforehand what to choose among new and old flowers, so just give me half-a-dozen hints."

I complied with my friend's request, and penned for him a few hints; and it occurred to me that, as there are always many in the position of my friend, at this particular season of the year, hints about annuals are acceptable to folks who have got out of the leading strings, I determined that the FLORAL WORLD should be the means of helping them.

It is quite true that the seedsmen's lists are voluminous, but how can you blame them for inserting all the species and varieties they have, even if they number thousands. Any novice, who may be perplexed with such lists, should turn at once to the "selections" that accompany them, where the most popular flowers will be found grouped together in classes, and from these the most ignorant may select safely. Numbers of things entered in bulky catalogues are of interest only to the botanical gardener, and to him many prove of inestimable value as furnishing keys to the classes and orders of plants, and in many ways contributing to his botanical knowledge. But for folks who simply want a gay display of showy annuals, a very limited supply will suffice. Among the hardy annuals, the following are absolutely essential, on account of their free blooming, and it is impossible for any one of them to disappoint. YELLOW and ORANGE—*Eschscholtzia californica* and *crocea*, *Cenia turbinata*, *Leptosiphon luteum*; *Limnanthes sulphurea*; *Lupinus luteus*; *Calliopsis tinctoria*, and *Burridgeanum*; golden annual Chrysanthemum; *Erysimum Peroffskianum*; golden Hawkweeds, Helianthemums. SCARLET and RED—*Collomea cocinea*; *Malope trifida grandiflora*; *Œnotheræ rubicunda*; Scarlet and Red Poppies; Scarlet Sweet Pea; Prince's Feather. ROSE and PINK—*Calandrina discolor*; *Adonis Flos*; *Calliopsis atrosanguinea*, and *Drummondii*; *Centranthus macrosiphon*; *Clarkia pulchella*, and *neriflora*; *Collinsia Bartesiæfolia*; *Kaulfussia rosea*; *Limnanthes albus roseus*; *Lupinus rosea*; *Lychnis nanus*; *Œnotheræ rosea alba*; *Papaver Marshallii*; *Silene rubra*, and *Pseudo atocion*; Virginian Stock; *Viscaria oculata*. BLUE and PURPLE—*Calandrina grandiflora*; *Campanula pentagonia*, and *Loreii*; Convolvulus minor; *Cyanus* minor; *Eutoca viscida*, and *Wrangeliana*; *Gilia californica*; *Iberis Violacea*; *Kaulfussia amelloides*; *Lathyrus azureus*; Rocket Larkspurs; *Lupinus nanus*, and *Monogynia*; *Nolana atripicifolia*; *Viscaria oculata nana*. LILAC—*Collinsia bicolor*; *Gilia tricolor*; *Leptosiphon densiflora*, and *androsaceus*. WHITE—*Campanula pentagonia alba*; *Cenia alba*; *Centranthus albus*; *Clarkia alba*; *Collinsia bicolor alba*; *Convolvulus minor alba*; *Dianthus sinensis alba*; *Iberis coronata*; *Lupinus Dunnettii supurbus*, *Hartwegii albus*; *Malva zebrina*; *Nolana grandiflora*; *Silene armeria alba*; white Virginian Stock.

Among the half-hardy annuals, the best are Asters, of all colours except yellows and bright blues. Stocks, crimson, purple, white, and blush; double French and African Marigolds, of many shades of yellow and orange; *Phlox Drummondii*, various; *Salpiglossis*, various; sweet Sultan, yellow, purple and white; and for special choice purposes the following—*Acroclinium roseum*, a splendid new everlasting flower of a lively satin rose; *Anagallis indica*, pretty blue; *Alonsoa warscewicsii*, bright scarlet, and splendid for beds; *Bartonia aurea*, fine orange; *Helichrysum*, of many shades of white, yellow, and pink; *Lobelia ramosus*, splendid blue, for beds and edgings; *Veronica syriaca*, a perfect gem of the speedwell family, charming blue and white, and admirable for pots; *Portulaccas* of sorts, yellow, rose, and white; *Saponaria calabrica*, for a neat bed of pink; and *Zinneas* of many colours.

It is not the greatest variety which produces the best effect, and in a long border the repetition of the same colours, at regular intervals, will be found far more pleasing than a heterogenous mixture. Indeed, a few of the cheapest and commonest annuals of distinct and showy colours, repeated again and again along the whole length of the border, is the best way for any beginner to use them. Those who have had experience may find many things in the list I here present, that may be usefully added to their selections this season, but any one not sufficiently experienced "to forecast the future whole," should trust to twelve or fifteen sorts, repeating each in succession, at regular intervals, and, perhaps, reserving some choice sorts for use in beds only. Thus we may have a patch of scarlet, then white, then purple, then orange, and so on—taking care that lilac is divided from blue by scarlet, blue from purple by white, or otherwise, so that by no unhappy juxtaposition to rob the several colours of their due effect. Above all things, purchase your seeds at first-class houses, and pay a fair price for them; for cheap seeds are, like other cheap things, very dear in the end, and it costs as much trouble and care—nay, more— to grow plants from poor seed as it does from the best.

AN OLD GARDENER.

CULTIVATION OF ANNUALS.

BY MESSRS BUTLER AND MC'CULLOCH.

THE soil should not be over rich, and should be dug deep; the surface should be rendered smooth and fine before sowing the seed; small seeds sown on rough ground fall between the clods and into the crevices and get buried. Attention to this simple hint will save growers much disappointment and seedsmen a great amount of blame; for, in cases of failure, the quality of the seeds is almost invariably impeached. Hardy Annuals may be sown from the middle to the end of September for spring flowering; the plants ought to be thinned out before winter, to prevent their damping off, and transplanted early in March, to the flower border, or, when more convenient, may be sown where they are to bloom. Many of the Hardy Annuals, especially the Californian, flower more profusely, produce finer blooms, and remain longer in perfection during the spring months than at any other season of the year. For summer and Autumn flowering, sow from the middle of March to June. A common error in the cultivation of Annuals, is in allowing them to grow too close together; and many of what would otherwise be an attractive 'patch' or bed of annual flowers is ruined for want of thinning. We therefore say, thin early, and sufficiently to afford ample space for the perfect development of the plants left. It is also very important to afford support to such kinds as require it, before they get broken or injured by wind or heavy rain; perhaps the simplest method of doing this is to place, amongst and around the plant, small neat branches like pea-stakes; the lateral shoots will extend amongst and hide the stakes, and the support afforded by this simple and inexpensive means, will, in most instances, be found all that is required. But, perhaps, the common practice of covering the seed too heavily, causes more disappointments than all other errors. Small seeds should be covered very lightly, and with soil not liable to cake by exposure to sun and air. Common garden loam and leaf soil, or old dung, passed through a fine sieve and well intermixed, will be excellent for covering with. Half hardy Annuals should not be sown in the open border before May, and the ground will require the same preparation, &c., as recommended for Hardy Annuals. But the best method of raising these, is to sow in pans or boxes, in April, or in a bed, about three inches thick, of light soil, placed on a gentle hot-bed formed of stable manure or vegetable refuse, and protected with a frame or hand-glass. Water sparingly, and give plenty of air when the plants appear, and thin out, or prick off in small pots, and be careful to get the plants well inured to the weather previous to planting in the open border, and also to give water as may be necessary, after planting, till established.

It is advisable to raise German Flower Seeds in pans or boxes, under the protection of glass, as recommended for Half-hardy Annuals; but, where this cannot be conveniently done, they may be sown on a well-prepared border, in April or May. German seed-growers bestow great attention upon Stocks, and, with good management at least two-thirds of the plants will produce double flowers. The most successful method of cultivating these beautiful plants, is to sow the seed in March and April, on heat, and when they have four leaves, carefully prick them out into a bed of poor soil, and finally transplant them when three or four inches high, with a ball of earth, to a bed or border of rich soil. They may also be sown out of doors in April and May, on a nicely prepared border; but the seedlings must be treated as already recommended.—*Seed Catalogue*, 1858.

GENISTA CANARIENSIS.

I DON'T wonder the market-growers find Genistas pay them well, for to see them just now in Covent Garden market is to have a strange sense of water in the mouth that no flowerless Londoner can resist. In fact, they sell as well as any sort of stock brought into market—a quantity put together in a mass having a very dazzling effect. Now, isn't it strange that amateurs seldom attempt to make anything like a collection of Genistas? They go mad about geraniums and fuchsias, and treat with contempt these nymphs with golden hair. *Canariensis*, in its old form, is a great favourite of mine, and I thought your readers might like to be informed how nearly hardy it is. I have a number of fine plants from three to five years old, with huge globular heads; some of them measure five feet round; one, trained out flat for a particular purpose, measures two feet six across, and is a dense mass of foliage and flowers. Most of my stock of this plant have this winter endured four degrees of frost, and not one of them has been under glass since the winter of 1856-7, when I was obliged to house them for three weeks. I keep them on a bed of coal ashes under a fence, which shelters them from the north, and during the frosts we had duringthe greater part of the month of February, they were sheltered at night only by laying an old shutter over them, supported by a few large flower-pots. They are now completely covered with bloom-buds, and in a few weeks will begin to bloom, and will continue gay till June. The way in which I get them so hardy and handsome is to plunge the pots out of doors from April to November. As soon as they are out of bloom, every stem is stopped in, to promote a close, bushy growth all over equally. In September they are stopped again by clipping off the points of all the shoots with a pair of scissors, and then they are left to bloom in their own way, and almost every joint produces a head of bloom. I pot them once in two years; after I have once got them into five-inch pots, using equal parts of peat, loam, and leaf-mould, with a little powdery old dung and silver sand. My largest specimen, measuring nearly six feet round, is now in a six-inch pot, and has had no shift since the summer of 1856, but the surface soil is now and then refreshed with a top-dressing of powdery dung. In spring, when they are opening bloom, I generally give them a top-dressing of fresh goats' dung, —a material that I use in the same way for pot roses, fuchsias, and calceolarias, and with decided benefit to the plants. One reason why I think Genistas are not so much grown by amateurs as they should be, is the difficulty of striking them. This difficulty bothered me for years, and at last I succeeded in rooting the young shoots that break from the sides of old stems, when they have been cut in after blooming. As soon as these are an inch and a half long, I take them off with a heel, dibble them with a quill into sixties, filled with peat and sand, cover with a bell-glass, and plunge the pots into a half-exhausted hot-bed. They are a long time rooting, and grow slowly the first year, but when three years old, I know of nothing more welcome in the whole catalogue of spring flowers. *Genista Canariensis* has been hybridized with success. I had, some years ago, a plant of *G. C. atleeana*, which is a hybrid raised by Mr. Atlee; its habit dense and symmetrical, and a most abundant bloomer. My specimen was ten feet high, and had a splendid head, clothed to the base of the stem. As all the Genistas seed freely, they offer a tempting opportunity to amateurs, and would be good subjects to begin with in experimental cross-breeding.

E. J. L.

[We think the Fuchsia a far more promising subject for a beginner than any Genista, which are difficult to manipulate with in the processes necessary to artificial impregnation. Noris any great result to be expected from hybridizing Genistas, the range of colouring among the species being so limited. — ED. F. W.]

HARDY EVERGREEN FLOWERING SHRUBS.

BERBERIS JAPONICA.

BY MR. JOHN STANDISH, OF THE ROYAL NURSERY, BAGSHOT.

BERBERIS JAPONICA is a plant of rare excellence. It is doubtful whether our gardens possess a shrub which can compete with it in general beauty—certainly they have none which can surpass it. Its foliage is magnificent and unique; its flowers are delightfully and powerfully fragrant; its fruit forms a very striking feature in itself, and, withal, it is perfectly hardy and evergreen.

A strong healthy plant will produce leaves eighteen or twenty inches long. These are usually composed of four or five pairs of leaflets, and a terminal one, the latter being often six inches long, by four or five broad.

The flowers, which are yellow, and, as I have said, very fragrant, (having an odour, combining the fragrance of the Daphne with that of the Tea Rose) are borne in large terminal clusters of erect racemes; but as the fruit ripens, they become pendant. The berries are oval, and resemble in colour, rich, purple grapes, and they are individually as large as moderate-sized ones. So abundant are they, that I have gathered clusters weighing a pound.

The plant is a native of China, from whence it was sent to this country by Mr. Fortune, who tells me he has seen specimens twelve feet high, and as much through.

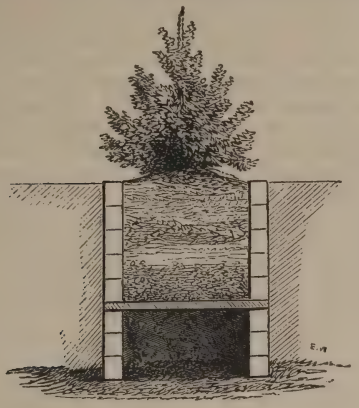
For successful cultivation it requires a very rich soil and a cool, shady situation, as under, or near trees. For such positions it will be invaluable. There are, however, as I need hardly state, difficulties in the way of successful culture in such localities—the roots of old or well-established trees, forming, under ordinary circumstances, a formidable obstacle to the progress of the new comer.

In obviating these difficulties, the following mode will be found valuable, and not merely with reference to the plant in question, but for numerous others, which may be most advantageously planted under like conditions, and there are very many fine shrubs which present themselves for our consideration in this respect.

In the spot where it is desired to plant, dig a hole of the size required—say a yard deep, and as much in diameter, and case it with brick-work; if the bricks are laid in cement so much the better. On the third course from the bottom, lay across some rough pieces of plank, to form a foundation for the soil above to rest upon. Then carry up the brick-work to the ground level. On the planks place some

rough drainage. Throw in the soil, and plant the shrub. The use of the vacant space beneath the plant is to prevent the roots of the surrounding trees from intruding upon the newly-planted shrub. After a short time they will be collected there in considerable numbers, without in any way interfering with the plant above.

The accompanying sketch will, perhaps, more fully illustrate the mode of planting which I have described.



BREAKING THE CHRYSANTHEMUM.

What is termed "breaking," in gardener's language, is simply starting the plants into their seasonal growth; and, with the Chrysanthemum, this may be done at almost any time, for if suckers are taken off the moment the bloom is over, they winter well in frames; if taken in spring, they grow rapidly, and are not much behind those struck in autumn; and even as late as August cuttings may be struck to bloom the same year. The interest that attaches to the precise period at which it is best to commence the culture, arises out of the necessity for those who exhibit, to have their specimens in their finest possible condition as to size and bloom, by a certain time, and that is, the second week in November, when most of the shows all over the country take place. Now, if the schedules of Chrysanthemum shows required every exhibiter to state certain leading particulars as to the routine adopted in their cultivation, our knowledge of the best means of treating this flower would doubtless be improved, for every exhibiter, and especially those who are most successful, could contribute information that would be invaluable, not only to the floral public generally, but to their brother exhibiters, whether amateur or professional. This plan might be extended to flower-shows of all kinds, without detracting in any way, from the merit that attaches to individual skill and patience, or interfering in the least with the interests of professional exhibitors.

It must not be supposed, however, that Mr. Scutt is the only grower who has produced grand specimens from cuttings struck in March. Every grower of the Chrysanthemum knows, that, for all ordinary purposes, March is the best time for the purchase of new stock, and the increase of every kind already in the collection. We have had the best of the Pompones in full bloom, the first week in November, from cuttings struck in June and July; the period and manner of their blooming being very much at the command of the grower, by judicious stopping and the abundant use of liquid manure.

The old plants that were cut down before winter, are now full of promising suckers, and from every old stool as many young plants may be propagated as may be required, even if it be hundreds, by successive stopping and striking, until the time comes to leave the plants to set for bloom. The best cuttings are young shoots of three inches long, trimmed of the lower leaves, and cut across under the lowest joint. The best soil in which to strike them, is a mixture of powdery peat and silver-sand, with a coating of fine sand on the surface; and they root speedily in a moist heat, of from 60 to 80 degs., and must have air and a reduced temperature as soon as they get hold of the soil. When fairly rooted, they should be potted into thumbs in peat, silver-sand, and fine turfy loam; be stopped at the third joint, have a little bottom heat, to give them another start, and then, as soon as they will bear it, be hardened gradually by admission of air. After that, they should never get pot-bound, and at the next shift, should have proper Chrysanthemum soil, and the most generous culture, and be regularly stopped to cause the formation of a fine head. The best compost for specimen plants, is one of sweet turfy loam two parts, decayed dung two parts, and one part peat, with the admixture of some sharp sand and potsherds, to keep the whole open. Well pulverised night-soil is the best of all things to top-dress the pots with, after every shift. A soil composed of two parts loam, one leaf-mould, and one well rotten dung, serves for the ordinary culture of pot and border plants, and where the soil is a good sound loam, an annual dressing with dung will be sufficient for those who simply want a gay effect, and have no intention of becoming competitors for prizes. The grand thing in Chrysanthemum culture is manure water, and plenty of it: they ought never to flag, even in the hottest July sun.

The directions often given in gardening books to take plants up from the borders to pot for in-door blooming, is one that leads many beginners astray. Plants removed into pots from the open ground, do very well for ordinary purposes, but for completeness and beauty, can never be compared with those that have been grown in pots from the first. The check the removal gives them, and every check they may afterwards suffer through want of water, causes them to cast their lower leaves, and one chief excellence of a Chrysanthemum in a pot is, to be leafed to the bottom, and not one inch of bare stem visible. If you want first-rate pot-plants, grow them in pots from the very first, and shift them as fast as they fill them with roots, till you get them into their blooming-pots, about the middle of June, when all required for early blooming should be stopped for the last time. It should be remembered, that though very hardy when grown in the open air, pot culture, and especially the striking of cuttings in heat, renders the Chrysanthemum a little tender, and young stocks after being potted off, must be guarded against these late spring frosts, which are more trying to the gardener, than the sternest severities of real winter. Next month we shall give a full list of old and new Chrysanthemums.

NEW HARDY AND HALF-HARDY PLANTS.

INTRODUCED LAST YEAR.

(Selected from the "National Garden Almanack, 1858."

Aquilegia eximia. (Flore d. Serres, t. 1188.) A handsome hardy perennial, resembling A. canadensis and A. Skinneri; it is sometimes known as A. californica; flowers orange scarlet, of curious form. California. M. Van Houtte.

Astilbe rubra. (Bot. Mag., t. 4959.) A pretty tall hardy perennial, with bi-ternate (twice divided in threes) leaves, and dense robust panicles of small red Spiræa-like flowers. Khasya Mountains. Kew Botanic Gardens.

Campanula Bromeheadiana. (Gard. Chron., 1857, 517.) A very fine double blue Canterbury Bell, raised at Bracebridge, near Lincoln, by the Rev. W. Bromehead.

Cydonopsis rotundifolia grandiflora. (Bot. Mag., t 5018.) A slender, half-hardy perennial, bearing large bell-shaped, dull green flowers, streaked internally with purple. Himalaya. Kew Botanic Gardens.

Dianthus pulcherrimus. (Flore d. Serres t. 1172.) A charming dwarf herbaceous perennial, forming a close tuft of broad blunt leaves, and producing close in their centre a convex mass of crimson flowers, having a white eye. Supposed to be a native of China. Cultivated many years since in England; re-appearing in the French gardens.

Gaillardia (picta) grandiflora. (Flore d. Serres t. 1183.) A magnificent herbaceous plant, probably half-hardy only, and short-lived; flowers large, yellow at the edge of the ray, crimson in the lower half, with a large dark disc. A garden variety. Belgian Gardens.

Lobelia texensis. (Bot. Mag., t. 4964.) A fine robust half-hardy perennial, two or three feet high, with long dense racemes of showy scarlet flowers. Texas. Kew Botanic Gardens.

Lupinus Menziesi. (Bot. Mag., t. 5019.) A really handsome hardy erect annual, with hairy leaves and dense spreading spikes of rich yellow flowers. California.

Oxalis corniculata atropurpurea. (Flore d. Serres t. 1205.) A dwarf annual Oxalis, with purplish clover-like leaves. A garden variety. M. Van Houtte.

Prunus Triloba. (Gard. Chron., 1857, 216, 268.) A highly interesting and desirable addition to hardy shrubs; flowers round and semi-double, of a delicate pink, upwards of an inch in diameter, thickly set on the long twiggy branches. China. Mr. Glendinning.

Ribes nutans. (Bot. Mag., t. 5023.) A neat decumbent hardy peat-loving shrub, covering the ground in the manner of ivy, with its glossy ternate dark green leaves; flowers large, white. India. W. Borrer, Esq.

Sabbatia campestris. (Bot. Mag., t. 5015.) A handsome erect-branching annual; the flowers large, deep lilac rose with a yellow eye. Texas. Mr. W. Thompson.

Salvia candelabrum. (Bot. Mag., t. 5017.) A handsome hardy (or half-hardy) suffruticose plant, with a powerful aromatic odour, hairy leaves, and an erect panicle with trichotomous branches; flowers showy, the upper lip is white, and the lower deep violet purple, darker beside a white central streak. Spain, Mr. W. Thompson.

Scabiosa atropurpurea flore-pleno. (Flore d. Serres, t. 1203.) A handsome sub-shrubby plant, the common form of which is biennial, the present perpetuated by cuttings; florets dark, blackish crimson, and double, forming a really handsome flower-head. A garden variety. M. Van Houtte.

Sedum Fabaria. (Gard. Chron., 1857, 660.) A fine hardy herbaceous succulent-leaved plant, allied to S. Telephium, but larger and handsomer; flowers pale lilac, in cymes 6 inches across. Alps of Europe. Capt. Trevor Clarke,

Tanacetum elegans. (Flore d. Serres, t. 1191. An elegant fern-like hardy perennial, with bipinnate leaves, silvery-velvety when young; flower-heads yellow, button-shaped. California. French Gardens.

Thuiopsis dolabrata. (Gard. Chron., 1857, 380—fig.) A noble pyramidal evergreen tree, probably quite hardy, described by Thunberg as the most beautiful of all evergreens. Japan. Messrs. Veitch and Son.

Veronica syriaca. A handsome annual, of dwarf compact habit, suitable for beds; flowers blue, the lower segments white. Syria. Messrs. E. G. Henderson and Son.

Viola pedunculata. (Bot. Mag., t. 5004.) A very handsome dwarf half-hardy perennial, with cordate leaves and large bright yellow flowers on long stalks, the two upper petals bearing a large crimson blotch behind. California. Messrs. Veitch and Son.

Weigela amabilis fol. variegata. (Flore d. Serres, t. 1189.) A desirable hardy deciduous shrub, having the leaves bordered with yellowish white. A garden variety. M. Van Houtte.

GRASSES, GRASS-PLOTS, AND LAWNS.

BY SHIRLEY HIBBERD.

Oh, joyous spring time! the signal of thy advent is the renewed greenness of the earth, and the softened azure of the cloud-flecked sky! Blessed manifestation of God's love to man, do we read in the every-day fact of the blue above and the green below, for these are Nature's leading and universal colours, that present themselves whichever way we turn, and the only two on which we can gaze and gaze without weariness of eye or satiety of heart. If the blue sky lifts up our thoughts to the heaven, of which it is the visible emblem, and in its blaze of sunlight or beseeching poetry of a million stars, fills us with wonder, the grass which covers the earth wooes our feet to tread its velvet verdure, and in like manner, fills us with joy and love.

If the grasses take the first importance among all the green children of the world, as benefactors of man and the creatures that cast their lot with him, so is the grass in its collective aspect, one of the most poetical, and morally suggestive of all the several elements of an earthly paradise. It is the symbol of man's state upon the earth. "As the flower of the grass shall he vanish away. The sun riseth with heat, and the grass withereth, and the beauty of the fashion of it perisheth." But as the seasons renew the grass upon the earth, so has God appointed and promised to his children the glorious second life, wherein man shall find rest in the fields of heaven. The perennial freshness of our grass is the distinguishing feature of our English landscape, and the grass is such a homely, bright, and hearty thing, that it stands for all that is good and honest in our Saxon usages; our love of country, our nationality, and our independence. The green undulations of a fine, old, well-wooded English park, are not to be equalled elsewhere in the world, and a true born home-loving Briton, may well be proud of the soil he treads on, seeing that it is so richly carpeted with its velvet turf of lusty green, and in the wildest nook of wood, among bearded oaks and daisied dimples, the grass gives the final touch of completeness to a scene—

"Full of fresh verdure, and unnumbered flowers,
The negligence of nature, wide and wild."

Taking the most prosy, practical view of the subject, this month of March is the time for every lover of green turf, and every collector and cultivator of grasses to be busy. The increasing taste for ferns and foliage plants has already done one good service to the cause of botany, as associated with gardening; we have been drawn aside from the too exclusive admiration of *colour*, to the perception of high beauty, as exemplified in *form*; the grasses possessing graces and elegances peculiar to themselves, have, within the last half-dozen years, had more attention than perhaps was ever before awarded them in this or any other country. The indefatigable Mr. Lowe is busy in the publication of a "History of British Grasses," which will contain hundreds of figures from the life, and in florist's catalogues ornamental grasses begin to cut a distinguished figure.

In the list of uses to which grasses are adapted in ornamental gardening, the formation of grass-plots and lawns must, of course, rank first, because, without a liberal proportion of well-kept turf, a garden, however lavishly furnished otherwise, is a tame, thin, ineffective affair. But as distinct ornaments for modern position, some of the grasses lately introduced, and not a few that have been known for centuries, are most beautiful, and they offer, in their tall panicles and graceful foliage, the most charming of contrasts to the other ordinary forms with which they may be associated. I can think of few things that have a more telling effect in rough shrubberies, than some well-disposed tufts of Tussock grass, *Festuca flabellata*, which is a good companion to that extraordinary plant, the *Phormium tenax*, or New Zealand flax. But the queen of the ornamental grasses is the Pampas grass, intro-

GYNERIUM ARGENTEUM, OR PAMPAS GRASS.

duced from Brazil, in 1848, and now proved to be quite hardy in the climate of London. This is one of the finest specimen-plants for any style of garden decoration, but is most in its element in a cool, moist, half wild nook, among ferns and marsh plants, where it can shake its silvery panicles above all the rest, the mistress of an enchanted dell. The appearance of a well-grown plant of the Pampas grass is so extremely elegant, that neither pen nor pencil can do justice to it, the hard, wiry, serrated leaves of seven or eight feet in length, springing in a massive tuft of six or eight feet through, and from the centre arching over on all sides, with a gracefulness truly fairy-like. Its flowering season is October, and then the blossom-heads dart up like lances to a height of nine or ten feet, and at last bend over with huge feathers of a dazzling, silvery whiteness, each plume being from eighteen inches to two feet in length. From that time to the end of November, there is no fern, no other grass, no palm, no conifer, that by comparison with its exquisite grace and grand proportions could divide with it one of its prerogatives of queendom, and if well placed as to effect, a well grown specimen is worth a journey of many a mile to see. If raised by seed sown in heat in March, grown in a green-house till May, and then planted out in loam, leaf mould, and a little old dung, in a cool, moist situation, the Pampas grass will prove more than worthy of the poor praise I have bestowed upon it.

Whenever Fortune takes it into her fickle head to give me a week's leisure and a spare shilling, I have set my heart upon the formation of a grass garden, in which to collect all the notable species of British and foreign grasses, so as to compare them side by side, and by a vindication of their beauties, innoculate a large clique of people already mad about ferns, with a grass mania. I remember some years ago, wanting to hit upon something new in the way of planting a rockery; I had ferns and alpines in abundance, I had collections of British wild flowers, including all the daintiest darlings of the mountain and the moor, and I had collections of cistusses and showy trailers, and was determined to have one splendid bit of rock and water, without the help of a single flower or fern, and what could I pitch upon but grasses? *Briza maxima* and *gracilis* made lovely tufts between the stones at the base, *Stipa pennata* feathered the margins of the summit, *Isolepis tenella* made a few tit-bits for summer time, for it is not hardy; and, then, sprinkled about in various open positions, were *Pennisetum longistylum*, *Lagurus ovatus*, the old *Arundos* in plenty, *Ægilops squarrossa*, *Lamarkia aurica*, *Elymus caput medusæ*, and *hystrix*, two of the most curious grasses you ever saw; some charming sedge grasses fringed the pool, and *Stipa gigantea* was one of the chief features of the summit. The Pampas grass (*Gynerium argenteum*) had not then found its way to our shores; but what a regal attitude it would now assume, as the main feature of such a garden ornament!

The newest fact of interest in regard to grasses, is the suggested adoption of grass as edgings. The ordinary verge is a sound, effective margin to walks, where a band of grass would be quite in keeeping, but the new style is an improvement on the verge, or rather a quite different and improved method of edging. Two distinct grasses are candidates for the honour of beating dwarf box out of the field; and they are the common sheep's fescue, *Festuca ovina*, and the uncommon *Isolepis gracilis*, which, by the way, is a charming grass for pot and border culture. For beauty, the last must stand first, but for solid usefulness as an edging, the first will keep its place, because it is thoroughly hardy, quick growing, and may be had of any respectable seedsman, for almost nothing.

To make an edging of the fescue, it is best to sow the seed in a bed, and then transplant the young plants into the line of the edging, putting them exactly three inches apart all along. The transplanting serves a double purpose, it ensures regularity, and it enables you to throw out any other grasses which may have got mixed in the seed, for the edging should be of the one sort only, or all precision will be lost. The growth of this grass is close and tufted, there is nothing

coarse about it, and anything like severe clipping is altogether unnecessary. It is best to clip off the flower-stems as they appear, so as to promote and preserve the greenness of the very neat herbage, and towards the end of the season, another regular clipping will be necessary, to remove decayed leaves and set the lines in order for the winter. The *Isolepis gracilis* should be raised in a little heat, in boxes, and planted out with nice precision in May, and this, for its genuine gracefulness, should be allowed to bloom, as it is sure to do from Midsummer till after Michaelmas, but it will not stand the frost.

Now that we have got so far, we come naturally enough to grass-plots and lawns, and if I keep close to the matter, as one for sober, practical treatment, it must be to the suppression of many jovial reminiscences, aye, and of anticipations too, for here comes the summer, swift as the succession of night and day; once more the sun will blind us with his golden beams, and the "clear heat upon herbs" will touch us with the sweet lassitude that makes a "shady covert 'gainst the hot season," with a cool, mossy lawn to roll upon, the very perfection of listless happiness and abandoned heart-ease. Oh! the bright, smooth bowling-green, how it shines in its close shaven neatness of verdure, and what a fragrance is emitted from it on dewy summer evenings, when the foot gently bruises the green sprays, or the bowls make glaucous lines upon it!—Oh! the rippling summer meadows, where the moles have made hundreds of soft hillocks, that invite us to bury ourselves in the herbage, and rest our heads on pillows of wild flowers. Oh! breezy evenings, under orchard trees, where the grass makes a cushion on which the juicy pears may tumble unhurt; and oh! bright eyes, laughing cheeks, and lips made for kissing, how will you people the garden with angel faces, when the lawn has been rolled and swept, and every tint of earth and heaven has taken possession of the dazzling beds and borders. A garden without grass is no garden at all, but if there is not a single flower in it all the summer long, a patch of well-kept turf may do its share to make you happy.

This being the season for laying down and sowing grass, let us briefly advise those who may have an interest in the matter. In common with most other things, the grasses do badly on ground that is not effectually drained, and the first thing to do is to ensure good drainage where the soil is in any way retentive. A sound loam of a hazelly kind is that on which grass thrives the best, and if it can be got, turf from a high and dry common is the best of all materials wherewith to construct a lawn, and the best time to lay it down is the end of March, and thence to the middle of April; the ground to be first well dug, cleared of large stones, and raked perfectly level, or to such regular slopes as may be desired. Where the level is already broken, or where it may be desired to have an undulating surface, the slopes should be easy and spacious. Hence in a small space, an up and down lawn looks a little like child's play. Indeed, in planning any garden where grass is to form a feature, every endeavour should be made to give the lawns as free and open a character as possible; intricate patches, mixed with dottings of shrub, or broken up by a multiplicity of walks, have a mean effect, when compared with the one good sweep of well-kept turf.

To lay out a large surface, and to improve and renovate old lawns, a selection of suitable grass-seeds is sometimes preferable to turf, and to secure, by Midsummer, a good close turf from seed sown early this month is as easy as the keeping it afterwards in a condition of perfect beauty. Let the surface be well dug and made as fine as possible on the surface. If the soil is old and sour, or if it is a hungry gravel, fresh sandy loam, spread equally all over after the digging, will be preferable to manure, for we do not want a strong coarse growth, but a fine close one, and, in my opinion, spite of the dictum of gardeners, a moderate growth of moss is absolutely essential to the thorough beauty and enjoyment of a lawn, and from the first it ought to be

encouraged. When the ground is levelled and made quite fine on the surface, the seed should be sown, raked in, and then rolled, and to perform these several operations the first fine quiet day, when the ground is dry, should be seized upon, so as to make sure of a good beginning. On a heavy tenacious soil it would be well, before sowing, to lay down a good surfacing of fine ashes, and if a good surfacing of peat can be had in the district, a fat soil will produce a more mossy turf than without it.

The choice of grasses for lawns is extensive enough, and, as a rule, whoever wants a good turf from seed, will do better to trust entirely to the seedsman than to make any special selection. Messrs. Lawson, of Piccadilly, Suttons of Reading; Bass and Brown, of Sudbury, and Mr Clarke, of Bishopsgate-street, London, (who has a fine collection of dried grasses for the inspection of the curious), give their particular attention to the selection of grasses for all sorts of purposes, and it is only necessary for those about to sow to describe the extent and nature of the soil and situation, and especially to name how much of the ground is shaded by trees, and the right mixture will be provided for them. It may, however, interest many if I here quote Messrs. Lawson's prescription for a fine lawn, the quantity of seed named being sufficient for an acre.

	Light Soil.	Medium Soil.	Heavy Soil.
	lbs.	lbs.	lbs.
Ave'na flave'scens (Yellowish Oat Grass)	1	—	—
Cynosu'rus crista'tus (Crested Dog's Tail)	5	6	7
Festu'ca duriu'scula (Hardish Fescue)	3	3	4
Festu'ca tenuifo'lia (Fine-leaved Fescue)	2	2	1
Lo'lium pere'nne te'nue (Fine Rye Grass)	20	20	20
Po'a nemora'lis (Wood Meadow Grass)	1½	1¾	2
Po'a nemora'lis sempervi'rens (Evergreen Ditto)	1½	1¾	2
Po'a trivia'lis (Rough-stalked Meadow Grass)	1½	1¾	2
Trifo'lium re'pens (White Clover)	7	7	7
Trifo'lium mi'nus (Smaller Yellow Clover)	2	2	1

Under trees a little variation of the mixture must be adopted. Leave out the two species of Fescus and substitute similar quantities of *Poa nemoralis*. Indeed, *P. nemoralis angustifolium* is the best of all grasses to produce a beautiful sward under trees, its growth being so close that it displaces weeds, and it is green in spring earlier than most other grasses; and as it also does well in exposed places, it may be made "a note of," for any one, at this season, in a state of distress at the shabbiness of a lawn. Another most useful lawn grass is *Lolium perenne tenue*, but as it is twin brother of that very worst of lawn grasses, *Lolium perenne*, or rye grass, care must be taken to name it true. It thrives on almost any soil that is not wet, and is delightfully fresh all the winter.

The means adopted to make a lawn are those necessary for improving one, but there are others that call for mention. Grasses and clovers are the only plants that should be tolerated in the turf of any pleasure ground, but every soil has its own class of weeds—fat loams produce buttercups, shallow, chalky soils produce plaintain, wet places are apt to be infested with the lesser celandine and ground-ivy, and there is scarce a patch of turf anywhere, but in which daisies will some day or other spring up. Every one of such things is a nuisance, and if you want your turf to go to ruin, leave plaintains, and daisies, and dandelions alone, and your wish will be gratified. To get rid of such pests now is your time, and the best way is to out with every such plant by the root; docks and dandelions are the most troublesome, and for their removal the tool, known as a "docking iron," will be found most useful. If the labour of digging up every root should seem to be too great, the next best way is to cut each one over an inch below the level of the soil, and then on each wounded root lay a table-spoonful of salt. But the objection to this plan is, that over every deposit of salt, the grass, for some seasons, will grow with such luxuriance as to give the lawn a dotted appearance, every pickled tuft being of a darker and richer green than the rest. Having cleared away weeds, dig over all the bare patches, and sow every barren spot with seed, and whenever you sow grass for a lawn, sow

thickly, and roll in during the driest weather you can get for the purpose, and on old and ungenial soils, and especially in renovating a sour mangy grass-plot in town, give a good top-dressing of fresh earth before sowing. The wretched specimens of grass in the London squares only want a little fresh soil from the country spread over them, and rolled in, to make them once more bright and verdurous. When you have got your lawn, you must keep it with care, the mowings and rollings must be frequent, and on dry, barren soils, and in towns, where grass is expected to live on nothing, and to bear weekly scrubbings with birch brooms all through the dry, hot weather, a sprinkling of nitrate of soda or guano, and an occasional drenching with water will well repay the trouble, though on a fresh, sound soil, manure is a positive injury, because productive of a coarse growth.

One word more to those who lament that the moss will obtrude itself on the turf. Be thankful. Doesn't the moss make it cool and soft all the summer time, instead of jarring your feet at every step, as the horrid London grass-plots, that have been consolidated with half a century's rolling and trampling do? Be thankful that your soil produces moss, and make no fear of boasting that you breathe a pure air, for you never see moss where there is much smoke or noxious gasses of any kind, and there are but few soils which it takes to kindly, but when it does, it completes the luxury of the velvet carpet, making it as deliciously soft as a down bed, so that if you would roll about on it in ecstacies at the glory of the summer, you are in no danger of bruising your elbows and scapulæ. To be sure the moss must not get the mastery of you, but a fair bottoming of it promotes the growth of the finest grasses, and if you give the gardener orders not to shave too close during hot, dry weather, you may keep greenness about you when other people's lawns are brown; and you will find the moss preserve the grass, keep away the weeds and worms, and offer you a daily invitation to tread on its soft, elastic herbage—

"———And as thy foot there treads,
Thou see'st a present God-like power
Imprinted on each herb and flower."

Mc. EWEN ON STRAWBERRY CULTURE.

In the three departments of flower, fruit, and vegetable culture, there are three separate subjects, in the treatment of which success is a very decisive mark of good practice. To grow Roses, Strawberries, and Cauliflowers to perfection needs more than an ordinary amount of skill and perseverance, and these three may be taken as the representatives of high culture in each of these branches of gardening. To grow a dish of fine strawberries, whether in their natural season in the open ground, or at any other time by the aid of artificial heat, is no mean horticultural task, and as this fruit is so highly prized, we hail with pleasure the appearance of a treatise on its culture from the pen of the superintendent of the gardens of the Horticultural Society.* Mr. McEwen is essentially practical; a single page suffices him for introduction, and for such botanical particulars, as he deems requisite

The treatise is, in every sense, a working book, and we do not hesitate so say, the best on the subject ever produced.

As we have now arrived at the season, when forcing begins, and as many cultivators are now forming plantations, we present the subjoined extracts as those most likely to be useful at the present time. After describing the mode of forcing in the stove, and comparing its advantages and disadvantages, Mr. McEwen gives the following directions for the forcing of the strawberry in common frames:—

* Fruit Culture. Or the Culture and Forcing of Fruits. No. 1.—The Strawberry. By George McEwen. Second Edition. Groombridge & Sons.

STRAWBERRY FORCING.

"About the first of March, collect a quantity of fermenting leaves and dung, and with these, form a bed of about two feet in thickness, upon which a garden-frame is to be placed. If the frame is deep enough, it is as well to put this heating material into it; but, if otherwise, place the frame on the prepared bed. In either case, it is desirable to choose a warm situation for the bed, and to have the frame set at a sharp angle, or pitch, facing the south. Into this bed, when properly sweetened, the pots are to be plunged to the rim, keeping them about nine inches from the glass. The fermenting material must not exceed a milk-warm heat. The chink, to admit a little air by night, and still more by day, must not be forgotten. By about the middle of April, the plants will be in bloom, and during that period, if mild, the lights should be tilted alternately at front and back, to cause a circulation. On fine days, they will even be better drawn quite off. After the setting period is passed, increase the heat, by admitting a less volume of fresh air; and, when the ripening process is going on, treat them with more air, as when in bloom. It will be found that for late forcing, this is a more excellent way than having the plants set upon stages, in the most approved fashion, in the most beautiful house. This plan also suits admirably for supplying a succession for the forcing-pits at all seasons.

"The general treatment for forcing may be summed up thus:—The plants are kept in the airy situation when in blossom; and in the warm and moist situation, even to 100 degs. when the fruit is swelling and colouring; they are again subjected, or removed to a cooler, yet mild atmosphere, and, if possible, to where a soft warm air will play among the foliage, when ripe and ripening".

For pot culture, a soil consisting of three-fourths turf and loam, one-fourth decayed night soil, three years old, with a little sand and leaf-mould is recommended; rather heavy soil for the late sorts and late forcing, and lighter soil for the early sorts and early forcing. "In dry weather, and always when there is fire-heat, the plants are syringed every night and morning, except when in bloom, and when the fruit is ripening. In the dull early months, and the period of short days, to water the soil once a day is too often; while in the sunny and long days, a good soaking of water is required every day. It is even necessary sometimes to water twice a day in very dry weather; but this is not general. It is a rule never to let a leaf flag, nor have the soil saturated." The author also recommends clear liquid manure to be given twice a week, to the plants being forced, from the time the fruit is set, till it begins to change colour.

The following is a brief, but comprehensive code of

OPEN AIR CULTURE.

"The best soil for the Strawberry is a deep, heavy, unctuous loam, enriched with manure. If, therefore, the soil is light, add greasy clay, or marl, with manure. Trench or fork the ground from eighteen inches to two feet deep, placing the most strawy of the manure at the bottom of the trench, where it serves to enrich and drain, as well as to keep the soil open to the influences of the atmosphere. The most decayed part of the manure is worked in near the surface, not in layers, but incorporated with the soil as the work proceeds. The ground should be well drained.

"I have planted at all seasons. A good time is in August, or as early as good strong plants can be had. My practice is to select the stout knotty runners, and to lay them in pots, as for pot culture. Another good way is to lay them around the old plants, first loosening the old surface soil, and adding some newly prepared soil, but avoid making 'a hole,' as recommended by some; steady the layers by pegs, or slightly thrust them in the soil, but do not plant layers deep. These will lift with good balls. Once watering, at planting time, will suffice, unless the weather is very dry, when the operation may be repeated. The great aim should be to have the plants thoroughly established before winter,

and to this end, all runners should be stopped, and frequent hoeings, on dry days, should take place among the plants. By attention to these matters, a splendid crop may be had the first year, and for four years in succession, after which destroy the plants.

"The distance at which the plants should stand apart, must be regulated by the kinds. The Black Prince, Grove-end Scarlet, &c., do not require the same space as British Queen, Goliath, &c. The latter, that is, the strong growers, I plant at two feet and a half apart in the rows, with three feet between the rows. The smaller sorts are planted eighteen inches apart each way, or one foot in the row, and two feet between. Say not there is thus a waste of ground in the case of larger sorts, for the quantity and quality of fruit procured by ample space, with good culture, is enormous —almost incredible. For small gardens, these distances may be too great, and they are chiefly applicable to places where very superior fruit are expected. Well-prepared ground for Strawberries is good for the crops which follow, so that the extra labour is not lost.

"A very good plan for small holders —and it is adopted in large gardens also—is to form a large mound of soil, either circular, oval, or ridge—in fact, any form. It must be well drained in the centre, by heaps of rough brick rubbish, stones, or even branches. All round and up this mound, form shelves, about fifteen inches wide, beginning at the bottom. By the edges or sides of the shelves, or little terraces, there should be placed bricks, drain-tiles, stones, or rails, for the purpose of keeping up the soil, and, also, for the early ripening, and for the keeping of the fruit clean. The plants are planted close behind the edgings, and the fruit has a fine effect when hanging over the edge. This plan increases space, making small gardens large. One objection to it is, when the plants on the upper tiers are being watered, there is a danger of making those below soddened with wet; but, if proper precautions are used when making the mound, to have sufficient drainage up the centre, and a few drain-tiles at intervals in the soil, placed in a slanting position towards the drainage, much risk of getting the bottom ledges too wet, may be avoided.

"I have sometimes thinned the crowns of the plants, but without any marked benefit. Every autumn, however, I have the beds top-dressed, not usually digging between the rows, but have no great objection to forking in the centre of the spaces between the plants. I do not cut off the foliage until it decays, and this is commonly done in the spring of the year. A top-dressing of such as cow-dung, pigeon-dung, and guano, can, at the same time, be given with advantage; but, if these are unmixed and fresh, they must be used sparingly. Rich top-dressings of decayed stable manure, marl, and leaves are safe at all seasons. If severe frosts occur when the plants are in flower, they must be protected with some dry material, as hexagon, or other light and close netting, particularly in exposed situations.

"Previous to the fruit ripening, it is a good plan, in the case of early sorts, to lay tiles, or bricks, or circular drain-pipes, around the plants, and, for the general crop, to mulch the surface of the ground with strawy manure, or clean straw. Short grass, if free from seeds and slugs, may also be used, although many objections are urged against it. Any of those plans serves so keep the soil from cracking and the fruit clean, and the former especially adds to the ripening, by retaining and slowly giving out solar heat. In dry weather, a thorough watering will aid the swelling of the fruit, but is seldom necessary if the soil is deep and rich.

"It is very common that just after the fruit-gathering is over, a time of drought occurs; and this, also, is usually a time when the strawberry-beds are sorely neglected—not unlike the treatment which bulbs receive after the blooming season is over, Pray avoid this. Know, that now the plant repairs its wasted energies, and should be husbanding up stores of strength for the next year's crop, ere the sun, and light, and rains, and dews, lose their reviving influences. Therefore, take at once, and use ll

runners where required, and remove the others entirely. Stir, clean, and top-dress the ground, that the plants may grow and ripen in autumn, rest in winter, and start in the following spring with renewed vigour."

In addition to the sections on routine culture, the treatise contains a carefully arranged, "Calendarial Summary," Descriptions of Thirty-four leading varieties, "Hints on exhibiting the strawberry," and "Instructions on raising new varieties." With such an instalment, we look anxiously for other treatises in continuation of Mr. McEwen's course of "Fruit Culture."

MARCH WORK IN THE GARDEN AND GREENHOUSE.

Planting may still be performed, but every day's delay now increases the risk, for it is a positive injury to any deciduous tree or shrub to move it after the buds have begun to swell. Those who have yet such work to do, should finish the deciduous kinds first, as most evergreens may be deferred till next month if needful, and roses especially, should be got to their final quarters quickly. Digging of vacant ground should be proceeded with, and wherever the surface of beds, borders, or allotment plots, can be pointed over rough, either to get the soil dry for sowing, or to admit the night-frosts to the soil, it should be done. Manure may be dug in where required, when the weather is unfavourable for other operations, and any pruning not yet completed, should be got over without delay. This is a good time to clean fruit trees from blight; and cuttings of bush-fruits, and of apples and pears may still be put in.

Kitchen Garden.—The main crops may be sown, at the first opportunity, of all the leading vegetables, except beets, but it is advisable for all small holders to make successional sowings of small patches rather than large ones, of any kind of vegetable. Good breadths of peas and beans may be got in, with spinach between the rows of peas. Sowings of marrow and prussian blue peas, should be made for succession. Brussel's sprouts, two or three sorts of kale, chou de Milan, Shillings queen, West ham, and early York cabbage, a small pinch of horn carrot, cauliflower, leek, and lettuce, short top radish and small salads should be sown in small patches every fortnight. The first pans of celery may be pricked out towards the middle of the month, on a warm border which has not been dug, but covered with six inches of dung, with a sprinkling of light earth on the top. About the middle of the month sow the main crop of onions; these should have a piece of deeply dug strong ground, worked with manure, and the seed should be covered with a sprinkling of fine charred rubbish. Potatoes appearing above ground should be gently earthed over, or, better still, covered with sawdust to protect the young tops from the night frosts, and if there is any potatoe planting yet to do, the sooner it is accomplished the better, for experience has proved again and again that the heaviest and soundest crops are only to be had by early planting. The best mode of planting is to trench them in with the spade, so that the ground has not to be trodden on, either immediately before or after their insertion; the use of the dibble is one of the many causes of potatoe failures. Asparagus should be planted towards the end of the month, and the best plantations are made by sowing the seed where it is to remain, and thinning to the required distance. Seakale may also be planted any time this month; the small "thongs" make the best beds, but there is a little difficulty owing to the prejudices of gardeners, in getting them.

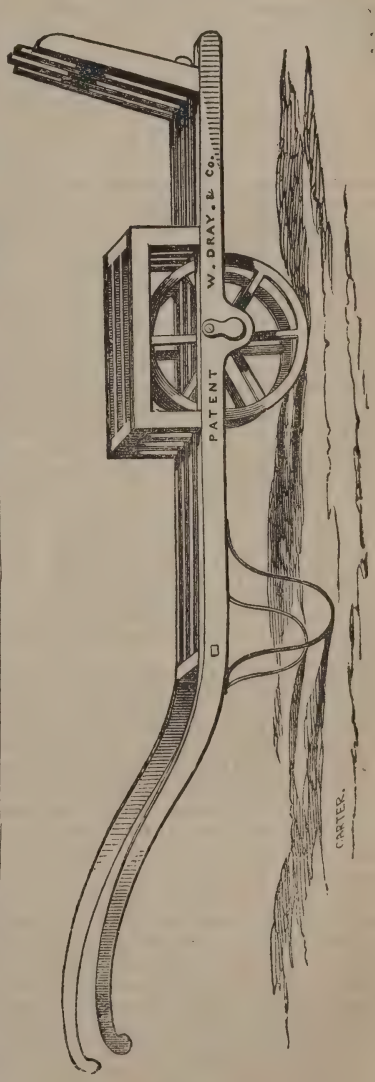
Flower Garden.—Sowings may be made of perennial and annual flower-seeds, and even half-hardy kinds, but the latter will of course not appear above ground until the temperature is sufficiently elevated for them. Old borders should be trenched up, and the perennials divided and replanted, and they will bloom much stronger in consequence this summer, besides having more neatness, and enabling the cultivator to adopt new arrangements. Any stock required for the flower garden should be got in without delay, and especially of such things as Chrysanthemums, Delphiniums, Phloxes, &c. Rockeries may now be planted with alpines and selected dwarf growing annuals and perennials, and roses of choice sorts may be grafted on well rooted stocks, the prunings

of good sorts, serving as scions for the purpose. Where buds of last season have failed, it would be well now to put on grafts and so save a season. The conditions requisite for success are, that the scion and stock should be as nearly as possible of a size where they are made to unite, and that the junction should be effected neatly, and carefully dressed to prevent the access of the atmosphere to any portions of the cut surfaces. Plant out such hardy plants as have been kept over winter in preservative pits; pot carnations, and place in a north aspect any that are kept in small pots for potting in April. Ranunculuses and anemones may still be planted, and seed of each may also be sown.

GREENHOUSE. — Cinerarias, Primulus, Genistas, Pelargoniums, and other things coming into flower must have as much light as possible, and plenty of air on bright days; but cold, dry, frosty winds will do much mischief, unless their force is broken by means of matting, and a judicious management of the whole ventilation. See to the regular stopping of all plants that require it, especially of Pelargoniums; stake out specimen plants; give tepid water liberally to all fast growing and blooming stock, with, at regular intervals, liquid manure. In the absence of guano or sheep's dung, soot water is a nourishing stimulant for occasional use. Fuchsias should now be got into free-growth, and have frequent syringings; Epacrises and Camellias done flowering, should have a gentle heat to promote growth, and a vigilant look out must be kept against vermin of all kinds, which now come in armies and commit vast havoc if not checked in time. In the propagating and cutting frame, good, steady heat must now be kept up, for the increase of all kinds of bedding stock, and the raising of tender annuals, and to start Achimenes, Gesneras, and Gloxinias. Average temperature this month, 50 degs. at night, 55 to 60 degs. by day; with a rise of 5 to 7 degs. with sun heat.

STOVE.—Pines swelling their fruit should have plenty of manure water; and fresh air must be admitted whenever the temperature rises to 85 degs., but the sudden admission of cold east winds will do much harm. The bottom heat should not sink below 80 degs., or rise above 90 degs. When the syringe is used it must be rather to dew the plants than drench them; which soddens the soil, and causes an unsalutary check. Vines that have set must be carefully thinned, not merely with a view to the production of good fruit, but for handsome bunches. Promote moisture in the atmosphere among peaches and vines, but never use the syringe to trees in blossom.

FERASSIER'S PATENT WHEEL-BARROW.



THE figure of this newly-invented barrow speaks for itself. Its depth

give its great capacity, and the load is placed beyond the wheels, so that a slight pressure becomes a means of propulsion, and the laborious nature of wheelbarrow work is entirely obviated. Messrs. Dray and Co., of Swan-lane, Upper Thames-street, London, are the manufacturers of these, and also an improved form of the common barrow, fitted with a moveable tail-board.

CLIMBERS FOR EAST WALLS.

Cotoneaster microphylla (old plants).
Chimonanthes fragrans.
C. grandiflora.
Clematis montana.
C. flammula.
Jasminum officinale (the common white).

ROSES.

Williams's New Evergreen, Crimson Boursault, Myrianthes, Ayrshire.

TO CORRESPONDENTS.

CHINESE PRIMULA.—*C. M.*—Directions for culture by one of the most eminent growers, will appear in our April No. In the "Town Garden," which you can have for 24 stamps, you will find the lists you require. They would be inappropriate to the pages of the "Floral World."

CUCUMBER SEED.—*M. W. Wells.*—Do not sow till the heat has become steady, then sow in pots or pans, and plunge in old tan laid on the surface of the bed, or in leaf mould that has been riddled through a coarse seive. If to be grown on in pots, the pots should have crocks at the bottom, and neary half filled, and three seeds sown in each, the soil being fresh light loam. We generally raise seedlings to be turned out in pits for early fruiting, in leaf mould and silver sand, so as to get a good ball quickly. When the plants are well started, thin them to one, and that the strongest, and earth up by degrees with rich light loam; eaeh plant to be stopped when it has two rough leaves. As to the amount of heat, that depends on when the fruit is required, but cucumbers will stand any heat between 85° and 60°—the more heat and moisture, the faster the growth, and the finer the fruit. Mr. Latter, one of the most noted of cucumber growers, gives a bottom heat from hot-water, averaging 80°, water at 85° for watering and syringing.

DIELYTRA SPECTABILIS.—*J. H. S.*—This lovely herbaceous perennial is quite hardy, and is a noble addition to our border flowers. It comes from cuttings freely all the summer. We have struck them in the open ground in sandy loam, by merely turning a bell glass over for the first few days. Seeds are not to be had, and on that point we have yet something to learn. You may get a plant anywhere for eighteenpence, and propagate to any extent you please. As it makes a fleshy tap root it requires a good depth of soil.

GARDEN PLAN, &c.—*E. A. C.*—Drying flowers.—*L. J. A.*—Both accepted with very sincere thanks.

HOT WATER HEATING.—*A. B., Wandsworth.*—We think your plan a safe one; the use of B for propagating is a good idea, but how do you get rid of the burnt air from the burner below A? If you do not carry it right away out of the house, it will be sure to do mischief. We would not only carry off the products of combustion as quickly as possible, but we would even feed a gas burner with air by means of a flue or air drain wherever possible, so that the flame should have no atmospheric connection with the house.

HOW TO MAKE A HOT-BED.—*W. W.*—If you get hot dung from a heap, and at once make up the bed, it will burn up every seed committed to it, and be exhausted in a short time. To secure a safe and constant heat, the dung should be first well shaken out so as to allow the atmosphere to penetrate every portion of it. After two or three days it should be turned over again and a fresh heap formed in a new place, every lump being broken by the fork in the process. If dry, it must be sprinkled with water at each removal, and if very short, and pasty, which may be the case if there is pigs' dung mixed with it, a moderate admixture of dry litter, such as fern, straw, old turf, &c., will give it more substance, for the duration of the heat depends on the quantity of undecomposed fibre in the heap. When it has acquired a moderate heat all over, mark out the place for it, a foot larger than the frame all round, drive in short stakes at the four corners, and shake the dung lightly within this space, just putting it together with the fork as you go on. It should be from three to five feet high, and the larger the bulk, the longer will the heat continue. Put the frame on, so that the dung projects equally all round it, and tilt up the light to let off the foul gases. In a couple of days you may spread four inches of good loam all over it, and you may then sow what you please—cucumbers, melons, marrows, capsicums, tomatoes, tender annuals, &c., in pots. If you purpose fruiting any of the gourd family in the frame, you can make room for them as other things are removed, and the way to plant them is to turn out the ball under the centre of a light, and then heap loam all round it so as to make a hillock, the outer edge of which must be heaped up above the ball, so that the plant will stand in a basin at the top of a mound; water will then soak to the roots instead of running off down the sides. It is better if you can do it, to make up a second bed to receive the plants from the first, when they are ready for it, and so on, working from frame to frame, and the first beds, when half spent, will be found quite warm enough for things that require only a little heat. We raise our early annuals in beds after gourds, and sometimes spawn the beds for mushrooms after the annuals.

NEW DAHLIAS.—*R.*—Franz Joseph is a blood-red, and has beautifully variegated leaves, raised by Deegen. Apollon is a golden amber; Midnight is a splendid thing, nearly black: Lady Popham, white tipped with lavender; Duc de Malakoff red amaranthe. Dahlias started at this season will supply abundance of cuttings, but beware of cooking them in excessive heat; 75 degs. is plenty—when it gets to 90 or 100, plants may be had, but not of sufficient robustness ever to do well.

PLANTING FIVE BEDS.—*H. R. R.*—Plant the large

bed with Flower of the day geranium, with edging of Lobelia ramosoides, and the four small ones with Sanvitalia procrumbens, Verbena Defiance, White perfection, and Emma, all four in the order named, going round. Or, large bed, Tom Thumb geraniums, edged with Cerastium tomentosum, and the four others, as follows:—Petunia, Prince Albert, Calceolaria aurea floribunda, Verbena Brilliant de Vaise, and Calceolaria Orange Boven. Fumigate your house with tobacco, then syringe the plants, and let them have a little more air. Perhaps you have kept them too close and warm of late. Gidney's self-acting fumigator will suit you. Write for it to Gidney, East Dereham, Norfolk.

PLANTS UNDER TREES.—*H. B. C.*—See a list in a previous page, to that you may add any of our hardy ferns, any of the hardy Primulas, *Cephalotaxus Fortuni*, and *Skimmia japonica* are lovely shrubs for undergrowth.

POTATOE SETS.—*A Young Hand.*—Potatoes that have made white sprouts of two or three inches long, are quite unfit for the purpose of planting; the sprouts should be stout, hard, well coloured, full of vigour, and not one should be broken in planting. We *do* know what is the method adopted by Mr. Sheppard, of East Grinsted, but though it is very simple, and might be told in half a dozen words, it would be an infringement of right for us to publish it. His success as a cultivator arises mainly from his mode of preparing the sets, and if you, as you say, want seed for planting, why not order it of him, and you will be entitled to a copy of his instructions.

ROSES.—*R. U.*—Yes, take cuttings about six joints long, and put them in in neat rows in very fine soil in a west or even north border. By an accident, we did not get your letter till we were going to press last month.

SEA KALE, &c.—*W. J. L.*—The culture of this and other choice esculents, will be fully treated, and for the present, we refer you to our monthly papers on "Garden Work."

SOILS, LIQUID MANURES, &c.—*Scrutator.*—The earths called loams, are those most in request for all kinds of vegetable and flower culture, but what proportion of sand should be mixed with them, depends on their consistence, and the purpose for which to be used. Sound friable hazelly loam three parts, leaf mould two parts, rotten dung one part, and gritty silver sand one part will grow almost anything, and may be considered the safest and universal compost.—Guano is best applied in a liquid state, and if the best Peruvian be used, the best way to prepare it is to dissolve five pounds in one gallon of warm soft water, and when it has become clear, add half a pint of the solution to a gallon of pure soft water. If used any stronger, it may do more harm than good. The best time to apply it is when the plants are in full vigour of growth, and never to very young plants, or to seeds of any kind; fresh cowdung may be used to make liquid manure. Leaves gathered in autumn may be heaped up any where in an exposed place to rot for leaf mould. In spring, turn them over to the frost. Hard water may be softened by the addition of a few drops of ammonia, or dissolve a piece of soda or potash as large as a pea in half a pint of boiling water, and add that to every gallon of the cold hard water. Any kind of earth will do to form the walls of a pit, but turf is the best; a four inch top sill will do; but a strip of zinc all round, wide enough to carry the rain off, would do better; the calico should be on the *under* side, and the centre bar *under* the calico, to which it may be kept close by means of a few tacks. The frame should be painted or tarred. We have answered the whole af your twelve queries by connecting some of them together, and shall always be glad to assist you, but have a little mercy on us, and put fewer queries at a time.

VEGETABLE MARROWS.—*E. T.*—We have not yet been able to find room for an article on the culture of this vegetable, but hope to do it next month. If your fruit is ripe, take out the seeds at once, remove them from the pulp, and dry them slowly, they may either be sown at once in heat, or saved till May.

VINERY.—*J. A. C.*—Cucumbers, melons, and mushrooms, and the forcing of seakale and asparagus are quite within your reach, and the propagation of all kinds of bedding-stock. As to growing on any choice flowering plants, that depends on how you manage your vines. You have heat enough for Gloxinias &c., but have you light enough when the vines are in leaf? We will endeavour to meet your wants at an early opportunity.

WATERING PLANTS.—ELDER LEAF CALCEOLARIA.—*Sphinx.*—"I have been in the habit of watering my plants with the water that drops from the tank in my stove, and sometimes syringe the leaves with it; but, from that, or, some other cause, many of the plants get spotted, and others die away. Can the water be so impregnated with iron as makes it unfit for the purpose named? I have several seedling Calceolarias with the leaves exactly like those of the elder Never seeing any like them before, I suppose it is not of common occurence. The flower is small yellow."—Water for greenhouse or any other plants should not come in contact with iron. The subject of watering demands more attention than it has yet received, for on that point, no end of mistakes are made by amateurs. For wetting the foliage of plants, the water should be pure, soft, and tepid, never cold. If hard, a drop or two of hartshorn will soften it. Your Calceolaria is probably *C. pinnata*—a pretty yellow flowered herbaceous species from Peru.

INSECT AUTOBIOGRAPHIES.*—We have received two pretty little books of a novel character, which we heartily commend to the perusal of every lover of natural history, and especially to young people who take a pleasure in observing nature and gathering knowledge from the fields and hedge-rows. They are respectively entitled "The Autobiography of a White Cabbage Butterfly," and the "Autobiography of a Gossamer Spider," both of them by Michael Westcott, a well-known contributor to the "Naturalist," and other scientific works. They are written in such a playful, genial, lively, and instructive spirit that the experienced naturalist will find a perusal well repay him, and to the many who are not yet acquainted with all the wonders mixed up with the natural history of spiders and butterflies, they will prove to be valuable epitomies of curious information, not compiled from books, but written *con amore* by a naturalist skilled in original observation.

*Groombridge and Sons, London; and T. Green, Wells, Somerset.

SMITH'S FUCHSIAS.

Among the novelties of the season, the three fuchsias to be let out this spring, by Mr. Smith, of Hornsey-road, show the immense improvement effected in this popular flower. *Princess of Prussia*, corolla pure white, beautifully folded; the sepals rich rosy crimson, and most elegantly reflected. It is undoubtedly the finest of its class yet produced, and as its habit is as free as the old *Nil Desperandum* producing the flowers in clusters of five and six, and five inches in length, it will be in immense demand.

Prima Donna, corolla bright rose, curiously edged with a warmer tint, approaching scarlet, the sepals white, of great breadth, and well reflexed. Though in general character an improved *Duchess of Lancaster*, it leaves that famous variety far behind.

Governor General, tube warm violet, sepals a fiery coral red. The form as near perfection as is possible to conceive.

METEOROLOGICAL CALENDAR FOR MARCH.

31 DAYS.		WEATHER NEAR LONDON, MARCH 1857.				31 DAYS.		WEATHER NEAR LONDON, MARCH 1857.			
		BAROMETER.	THERMOM.	WIND.	RAIN			BAROMETER.	THERMOM.	WIND.	RAIN
		MAX. MIN.	MX. MN. MN.					MAX. MIN.	MX. MN. MN.		
M.	1	30.496—30.472	54 32 43.0	SE	.00	W.	17	29.860—29.759	58 31 44.5	S	.00
Tu	2	30.449—30.437	50 41 45.5	E	.01	Th	18	29.751—29.717	65 44 54.5	SE	.00
W.	3	30.399—30.328	50 28 39.0	E	.00	F.	19	29.830—29.880	56 47 51.5	SE	.08
Th	4	30.180—30.076	50 23 36.5	SW	.00	S.	20	29.978—29.919	51 33 42.0	E	.00
F.	5	30 354—30.090	49 38 43.5	W	.00	S.	21	29.998—29.980	41 26 33.5	E	.00
S.	6	30.016—29.973	54 30 42.0	W	.00	M.	22	29.856—29.732	45 27 36.0	E	.01
S.	7	29.922—29.809	53 33 43.0	W	.00	Tu.	23	29.682—29.554	48 27 37.5	SW	.00
M.	8	29.556—29.470	47 28 37.5	W	.11	W.	24	29.619—29.518	50 38 44.0	SE	.00
Tu	9	29.992—29.715	44 27 35.5	N	.03	Th.	25	29.556—29.405	55 21 38.0	SW	.02
W.	10	30.005—29 932	40 30 35.0	SW	.01	F.	26	29.870—29.636	56 31 43.5	SW	.00
Th	11	29.989—29 875	40 25 32.5	SW	.00	S.	27	29.986—29.973	55 36 45.5	NW	.00
F.	12	30 002—29.990	45 28 36.5	SW	.00	S.	28	29.974—29.915	55 41 48.0	E	.01
S.	13	29.806—29.519	45 33 39.0	S	.00	M.	29	29.816—29.537	54 43 48.5	S	.18
S.	14	30.096—29.051	57 40 48 5	SW	.10	Tu	30	29.239—29.144	55 42 48.5	SW	.04
M.	15	29.805—29.311	58 27 42.5	SW	.00	W.	31	29.447—29.187	57 35 46.0	SW	.02
Tu	16	29.995—29.949	54 25 39.5	SW	.00						

AVERAGES FOR THE ENSUING MONTH.

The observations of sixteen years, show the following averages for the month of March:—Max. temperature, 50°; min., 35°; mean, 41½°; so that, as deduced from these observations, the month of March averages 3° Fah. above February, and 3½° above January, a very small increase when judged by its effect in rousing the vegetable kingdom into sudden activity. During the same period, the average fall of rain has been, 1.4 inches, being less than either of the preceding months. On the 15th of March there will be an eclipse of the sun, only partially visible in London, where, however, the greater part of the sun's diac will be obscured. The eclipse will commence at 41m. past 11, morning; the middle of the eclipse will be at 1 p.m.; and the close at 17m. after 2 p.m. The highest temperature observed in the month of March during the past thirty-one years, occurred on the 20th, 1830—Thermometer 75°; and the lowest on the 10th, 1847—Thermometer 7°.

PHASES OF THE MOON FOR MARCH, 1858.

☾ Last Quarter, 7th, 6h. 10m. p.m.
☽ First Quarter, 22nd, 7h 42m. a.m.
● New Moon, 15th, 12h. 12m. p.m.
○ Full Moon, 29th, 12h. 7m. p.m.

MEETINGS AND EXHIBITIONS, MARCH, 1858.

Tuesday, 2nd, Horticultural Society: Exhibition of Hyacinths, Rhododendrons, Cinerarias, Primulas, Forced Vegetables, &c., at Regent-street, London.—Thursday 4th, Anniversary Meeting of National Floricultural Society.—Tuesday 23rd, Exhibition of Hyacinth, and other Spring Flowers and Shrubs, Early Vegetables, and Gardening Implements, at the Music Hall, George-street, Edinburgh.—Thursday 25th, Meeting of National Floricultural Society.

*** *Secretaries will oblige by forwarding Announcements, Schedules, &c., of forthcoming Exhibitions.*

THE

FLORAL WORLD

AND

GARDEN GUIDE.

April, 1858.

PRING has set in this season with much less of that fickleness which we are wont to assign as one of its chief characteristics in this variable climate, and, from the general appearances of things within our own range of observation, and from the accounts which reach us from various parts of the kingdom, a splendid summer may fairly be anticipated. The mild temperature and bright sunshine, which, while we write this, awakens within us the most hopeful feelings—shared, also, we trust, by our readers generally—may, however, by the time this meets the public eye, have given place to those threatened returns of winter with which our summers are so often ushered in. The experienced cultivator is always on his guard against sudden changes of temperature until the month of May is fairly over; but it needs many years of experience, and that often dearly purchased, to induce in the mind of the cultivator the habit of caution, on which it so much depends whether the sudden return of cold and wet shall utterly cut off or materially injure plants that have been too hastily committed to the ground, or pushed into too forward a condition for the season. A backward spring gives far more peace of mind to the majority of gardeners than the advent of May weather in the month of March, and when we remember how often we are visited with severe frosts, snow, hail, and cutting north-east winds even up to the very dawn of June, it can be no matter of surprise that at this season of the year there should be some real satisfaction in seeing things "kept back." Rumour says that the Earl of Rosse has predicted a long, hot, and dry summer for the season 1858, and that by no mere guess work, but by logical inferences from true scientific data. Whether Lord Rosse has really entered on the hazardous vocation of a weather prophet, we do not know for a certainty; but this we do know, that gardeners, whether professional or amateur, pay far less attention to meteorological studies than they should do, for, ex-

cepting the mariner, none have a greater need for such knowledge than he who tills the ground. The glorious summer we enjoyed last year may not have a parallel again in the lifetime of any of us, though, judging from the meteorological annals of the last hundred years, a succession of such seasons is possible, for such have occurred for three or four consecutive years at a time. It is the business of the cultivator to adapt his operations to those circumstances over which he has no control. In districts where such soils as are required for particular plants are unattainable, composts resembling them are resorted to with more or less success, and, in like manner, many plants that would prove too tender if exposed to the full action of the atmosphere, are found to thrive when planted against walls. But these are instances of adaptation which include some amount of control, for the circumstances are altered, so as to bring about conditions resembling those which it would be desirable to enjoy without the necessity of calling in the aid of invention and ingenuity. The changes of the weather are utterly beyond our control, however much we may obviate injurious effects by the use of glass and other contrivances, and the only means we have of realising every benefit which favourable weather may offer, or of avoiding losses by the opposite, are directly dependent on our capability of estimating the probabilities of the future. Though the anticipations of the most accurate observers will frequently be falsified by events, it is, nevertheless, certain that he who takes an interest in observation, will, in the majority of cases, be better prepared to cope with difficulties, and profit by genial influences, than he who trusts to guess work and the invitations of the hour. At no season of the year is the gardener so thoroughly at the mercy of the weather as in spring; continued cold rains and late frosts may prevent the completion of operations that may have been delayed beyond their time, and the sudden outbursts of summer sunshine, which are so frequently followed by the rigours of January, may start many things into premature growth, only to render them the more susceptible of the untimely check that follows. We recommend all who take an interest in the culture of plants, no matter what may be the extent or special nature of their operations, to study the weather. Accurate instruments for registering the density of the atmosphere, and the relative amounts of moisture suspended in it, or falling from it; the temperature of the air and the soil; the direction and velocity of the wind, &c., are no longer confined by their expensiveness to the means of the few, for the prevailing cheapness of the age has effected in this branch of trade changes similar to those which have occurred in others; and manufacturers of the highest scientific eminence have successfully taxed their ingenuity to meet the demands of the times. It would be found a source of pleasure as well as of profit, for the cultivator to adopt a regular system of meteorological observation, and if no great result was obtained by the regular entry in a weather journal, and a periodical determination of amounts and averages, much useful knowledge would, nevertheless, be gained, and the mind would be trained in that best of habits—the habit of observing with accuracy. There is nothing difficult about it; regularity of observation is all that is necessary; anyone can read off the barometer and thermometer twice a day; anyone can measure the rain fall by the aid of a proper

gauge, and with the self-registering thermometers and cheap barometers of Negretti, Cassella, or Cox, even the cottage home might be furnished with a set of meteorological instruments, and the simple use of decimals would render the task of making periodical averages as recreative as it is simple. A gardener unskilled in meteorology, has learnt but half his business.

So many miscellaneous matters call for notice this month, that we must touch on each but briefly. As the season advances, the activity of the Horticultural interest manifests itself in exhibitions and other transactions in which the world is advertised of feats accomplished, in progress, or in contemplation. The Crystal Palace is very gay, and has long been so with camellias, hyacinths, primulas, tulips, dielytras, narcissi, cinerarias, genistas, and variegated plants, all of which are admirably forced, and the successions liberally kept up. On the 14th, 15th, and 16th of the present month, a Floral Bazaar will be held in the Palace, for the exhibition and sale of flowers. Messrs. Cutbush, of Highgate, have again cut a brave figure in hyacinths, and their show-houses have been the resort of flower-lovingpeople, not only from the metropolis, but from distant parts of the country, for many weeks' past, and as the show is not yet over, there is time for those who have not seen it, to make acquaintance with the best collection of the best grown plants anywhere to be seen in the south of England. Messrs. Chandler, of Wandsworth, are exhibiting their splendid collection of camellias, now in their full glory of crimson and snow white, many of the specimens being of immense size. At Exeter, Messrs. Lucombe and Prince invite the lovers of spring flowers to their large camellia house, which is now filled with magnificent specimens of the most noted varieties, loaded with thousands of blooms, and tastefully arranged with bulbous flowers, variegated plants, and azaleas, so as to produce a charming scene. We passed through the nursery of the Messrs. Sutton, during a driving snow, on the morning of the 3rd of March, and a rapid glance at the houses sufficed to convince us that the good people of Reading need not go far any time this month, to see camellias and azaleas in perfection. Next season the glory of the camellia shows will be enhanced by the addition of the new variety, *reticulata fl. pl.*, of which Mr. Standish, of Bagshot, is preparing a large stock to meet the great demand for it, but none will go out till next autumn. It was figured last year in the "Botanical Magazine," and in Van Houttes "Flore des Serres," but though its high character was unmistakeably indicated in each of those works, the flower from which the first sketch was made was past its prime, so that it may fairly be expected to surpass either of those representations. We have seen another unpublished drawing, which we believe is in progress of engraving, and as therein represented, the flower measures six inches across, the form such as to satisfy the nicest connoisseur of properties, and the petals, of a bright, rosy carmine, are of great substance. It will be one of the finest of conservatory plants, and a feature at exhibitions for many years to come.

Lovers of the chrysanthemum will be pleased to hear that the Horticultural Society purpose combining with their next autumn fruit show, an exhibition of this truly metropolitan flower. Stoke Newington need be in no alarm ; its old society, the first of the kind established, has parted at the root into two divisions, and each division will have its own exhibition, and still leave room for a dozen others in London, all in the same week, if need be. Indeed, the Newington exhibitions are fixed for the 9th and 10th of November, respectively, and the gathering at St. James's Hall will take place on the 17th and 18th. Chrysanthemum growers should one and all procure the March number of "The Florist," in which Mr. Salter's two new beauties, *Aimee* Feriere, and *Progne*, are beautifully figured by Mr. Andrews. *Aimee Feriere* belongs to the same class as Hermine ; the silvery white petals are tipped with delicate rose pink, and the symmetry of the flower and regular incurving of the petals, give it the

highest qualities of a show flower, for which purpose it leaves every flower of its class far behind. Progne, considering its dazzling brightness and depth of colour, is undoubtedly the most brilliant chrysanthemum yet raised, and it belongs to a class in which even a poor flower has hitherto been acceptable. It may be compared to the finest of our dark perpetual roses, such as Jacqueminot or Lord Raglan, for the purity and liveliness of its tint, and though it reflexes, its colour will render it a famous chrysanthemum.

Among the horticultural news of the month, we may name the election of Prince Albert as President of the Horticultural Society, in the room of the late Duke of Devonshire. Dr. Royle's office has been accepted by Dr. Lindley, who has given up his salary of £500 a year, in order to occupy an honorary position, and still give the society the benefit of his "admirable judgment and practical good sense." At the March meeting it was determined to institute a Permanent Fruit Committee, to whom will be referred the consideration of the claims of new fruits, and the determining the relative values of established varieties, and other matters of a kindred kind. We have received the schedule of prizes of the Stamford Floral Society, which is one of the most successful horticultural associations of the Midland Counties. The first show will be held, as usual, in the grounds of O. Edmonds, Esq , on the 7th of July, and the second show on the 8th of September. The list is a liberal one, and judiciously framed; it includes, besides all ordinary subjects, prizes for devices in flowers, and for collections of British wild plants in flower. While we are speaking of Stamford, we may mention that Mr Newcomb, of the High Street, has published a cheap and useful work, called "The Midland Counties' Almanack, and Rural Hand-book for 1858." It contains a vast mass of most useful information on gardening, farming, &c., and hundreds of domestic recipes, and is altogether one of the most useful works of the kind we have ever seen. The Sleaford Horticultural Society will hold its annual exhibition, open to all England, on the 22nd of July. The list of prizes includes stove and green-house plants, fruits, roses, and cottagers' produce. The arrangements for the Grand National Rose Show progress most satisfactorily. The subscription list will shortly close, and the schedule will then be issued. The amount received up to the 20th of March was £100 14s. The Royal Botanic announce three exhibitions of plants, flowers, and fruit, to take place on Wednesday, the 12th of May, and the 2nd and 23rd of June.

Mr. Fortune has once more sailed for China, in the service of the United States' Government. The principal object of his voyage is to procure tea plants for experimental culture in some of the warmer parts of the Union.

PELARGONIUM LA BELLE ALLIANCE.

THE Pelargonium, of which we give a coloured portrait, is one of a set sent out last year by Messrs. Henderson, of the Wellington Nursery, St. John's Wood. It belongs to the new and fashionable race of spotted Pelargoniums, to which it is a splendid addition. In habit and colouring it will please the most precise connoisseur, and though surpassed in the symmetry of its proportions by "Empress Eugenie," which is, perhaps, the most perfect model as to form, ever yet produced, LA BELLE ALLIANCE takes the first rank among show geraniums, and will doubtless keep it for many years. The warmth of its colouring renders it a special object of attraction in a collection, and its habit is so free, that it is one of the best for specimen culture, making a splendid object, when well done. Our figure is from the plate by Mr. Andrews, and may, therefore, be relied upon as true to the life.

THE CULTIVATION OF THE CHINESE PRIMROSE.

BY MR. THOMAS LATTER, NURSERYMAN, OF BRAMFORD.

This very useful and interesting winter flower has been a great favourite of mine for many years. To keep up a good succession of bloom from November till May, I sow in the first week in April, and the last in May, using a light soil, and a close warm frame, till showing the rough leaf; then harden them off by degrees, and prick them out into pans filled with soil composed of equal parts of decayed leaf-mould, and silver-sand. In a few weeks they will be large enough to shift into small 60-size pots, in fresh soil, as above, which place in a frame, and shade from the mid-day sun, giving an abundance of air, in order to keep the plants stocky and robust. A common frame, in a shady sheltered situation, is the best place for the summer months. In very hot weather, shade all day, and take off the lights all night. As they advance, pot on, adding a little more substance to the soil, with turfy loam and cow-dung, being very particular to give plenty of water, and plenty of drainage, but avoid heavy rains. About September, the first lot re-potted will now have arrived at that stage when it will be necessary to give them their final shift into 24 or 16-size pots—that is, according to the size of the plants—observing to pick out every blossom then appearing.

To prepare the soil for this shift, I recommend—one part turfy loam, one rotten cow-dung, two leaf-mould, two silver-sand; remembering to give plenty of drainage, as before. Do not plant deep; but, in order to keep the plants steady, insert three pegs round the stem. After a few days, they should have all the light and air you can give them, till October, when they should be removed to a shelf in the greenhouse or conservatory, as near the glass as possible, watering them once a week, when, —about November—they will again be showing bloom. Manure-water, composed of sheeps'-dung, cow-dung, and soot, stirred well for a week; when clear, use sparingly once a week. The May-sown plants I have generally found produce the best flowers, having heads of bloom eighteen inches in height, and the same in diameter, each semi-double bloom upwards of two inches in diameter, of great substance, and bright distinct colours. I need not say they have been seen every season by many of our best judges, and highly spoken of; or that they have, for many years, been in the hands of Mr. Wild, of Ipswich, who is now sending out the true stock, carefully saved by myself, from the plants selected by him this spring.

NOVEL CONTINENTAL FRUIT AND VEGETABLES TO BE IMPORTED INTO ENGLAND.

Although Covent Garden Market may be justly considered as one of the wonders of modern skill, where produce of every season is to be seen in every season, yet there are a few fruits and vegetables cultivated on the Continent which deserve the attention of the English gardener. The first and most important are the *Teltauer Rubchen* (the Teltauer turnip) They are of exquisite flavour, so much so that Goethe had them every winter on his table, sent to him from Berlin; they are not larger than a large radish, but more elongated. They grow in the sandy and peaty soil of the Marck, which is to be taken into account —A fruit unknown here is the Vienna *Cardinal Apfel* (the Cardinal apple.) It is one of the latest of its sort ripening, and of a dark blue colour, whence its name is derived. Besides this striking colour, which becomes still more apparent in peeling them, they are a juicy sort of apple, of pleasant flavour.—The third sort of vegetable produce not general known in this country is the *Forellen Salat* (the trout salad), which comes early to the markets in Dresden, &c. It is a head salad of smaller size, but very crisp and delicate. Its name is derived from the leaves being profusely marked by spots of a dark red colour, resembling those on the body of a trout. We think that any gardener introducing any of the above would derive advantage therefrom.—*Illustrated Inventor.*

What sort of stuff have you got to work upon? Settle that first, and act accordingly. I am so used to deep, fertile loams, that I am particularly partial to deep digging and trenching, but there are some soils that will not bear this sort of work. Where a shallow mould lies over chalk or gravel, it may not be wise to send the spade too deep, but wherever there is a fair depth of soil, the deeper it is stirred the better. Even where it would be inadvisable to bury the top spit, and bring the second spit into its place, it will still, in most cases, be good, especially on ground that has been cropped for any length of time, to open a trench by removing a breadth of the top soil, and give the under stratum a good loosening, for deep tillage secures good drainage, keeps the winter crops dry, and enables the summer ones to stand drought better, because their roots work deep into the stuff that has been loosened and sweetened, and so escape the drying action of hot sun and east winds. Wherever you really can do it, practise deep culture; a mere turning over of the surface mould is but child's play, and in the end does not pay. Good soil bears knocking about well, and every exposure of the under layer to air and sunshine increases its fertility, brings into action a larger bulk for the roots of plants to search through, and is, in many cases, actually better than heavy manuring. It has been proved in the Lois Weedon system, as practised by the Rev. Mr. Smith, that on a suitable soil the tillage may be carried on without manure for almost any length of time without exhausting its fertility. Mr. Smith has practised on a piece of stiff, absorbent ground, well furnished with the mineral ingredients of vegetation. He has it well dug, and then plants it with wheat in rows of three together, one foot apart; and with a distance of three feet between each row. As soon as the wheat is up, the one foot rows are well forked and air admitted to the roots of the wheat, and weeds eradicated, and as the wheat meets across these rows, the digging is discontinued. But the three feet rows are treated as *fallows*, and all through the spring and summer are thoroughly turned over and well exposed to the air, until the wheat meets over these rows. When the wheat comes off, the spaces which were fallowed are cropped, and the stubble rows are fallowed, and so on every year; and thus one half the ground is always in fallow, but thoroughly exposed by repeated digging to the action of the atmosphere, and it amounts to the same thing as if the whole field were planted with wheat every *alternate* year, except that he takes a full crop *every* year, namely, from thirty to forty bushels per acre. He uses no dung, no guano, no manure of any kind, yet the land is manured by the very act of digging, which enables it *to absorb from the atmosphere* the principles which maintain its fertility. It is not merely that the ground gets well pulverized and broken up by a free working of it, it is absolutely enriched by its power of absorbing ammonia and other ingredients from the air, and the influence of rain and sunshine in dissolving those mineral ingredients of the soil which plants require, but which are useless to them until brought to a proper condition by atmospheric action. Depend upon it, unless you have a very peculiar soil indeed, you cannot knock it about too much at every season of the year.

Now let every reader of this work take a leaf out of the Rev. Mr. Smith's book; dig deep, dig at every opportunity, never let the ground rest, except when crops are upon it, and even then keep the surface frequently stirred with fork, hoe, or rake, and you will find your account pay for your work in double and treble crops; you will be astonished what *measures* the *agitation* will bring you. Manure well also, and carry the day against all comers.

Now, supposing you to be quite a beginner, I will just describe the several modes of digging ground. The jobbing gardener works with an old

spade, the blade worn down to six inches, and with this he tidivates the top soil, just deep enough to hide the green mould and weeds that have grown upon it. That is the expensive mode of gardening, by which the cabbages cost five shillings each, and are then very small for the money. Another, and better way for plain digging is, to work with a good No. 2 spade, nearly new. Begin at one end of the piece, and throw out a straight trench of one spit deep, then work back very regularly, turning each spit clean over, so as to bury the surface weeds, and turn the spadeful quite upside down. If it is in good condition, say two days after rain, the mould will crumble down of itself, if not, give each lump a side cut with the spade, so as to rather shake it in pieces than to chop it up. Go on in this way, always keeping an open trench before you, for without that, and very regular working of spit after spit, the labour will be doubly fatiguing, and very inefficiently performed. Most people think they know how to plain dig a piece of ground; well, if you are not quite sure of your experience, just take note of the easy way in which a labourer goes over a piece, and you will see that the secret is to work regularly, and to keep always a good trench, into which every spadeful is easily overturned. This sort of digging is much practised in spring, in preparing seed beds and in making up loose ground, and in putting on manure for various crops, but if no other mode is adopted all the year round, the ground has no chance of showing you what it is capable of producing.

Where there is any depth of soil, trenching ought to be practised at least once a year over every bit of it that is not permanently occupied, but the diligent gardener will not be content with one annual trenching, but will take every opportunity to shift the soil to the depth of two feet at least, and on deep, rich loams even to three feet. Now this operation is performed in two different ways. If the subsoil is poor, or in any way unfit to be brought to the surface, it may be bastard trenched, which loosens the under spit, and keeps the top one where it was. But double digging or two spit trenching causes the under spit to take the place of that which is now at top, and at the next trenching that original top spit comes up again, and so on, and on each occasion, some portions even of the third spit get mixed with the other two. To perform either of these operations, proceed as follows:—

To bastard trench, mark off a piece right across the ground, one yard in width, take off the top spit *one spade* and the shovellings deep from the whole of this piece, and wheel it away to a yard or so beyond where you mean to finish. This will leave an open trench of a yard wide in front of the piece; the soil of this trench is to be well dug and manured. Now dig another yard in the same way, throwing the top spit and the dung and weeds into the open trench first made, and then the next digging, previously stirring the bottom as before, into the second trench, and so on till you come to the end of the piece.

Trenching is managed in the same way, except that the under spit is brought up to the top; in fact, the first and second spit change places. First take out a trench, *two* spades deep and twenty inches wide, and wheel the earth away to fill up the last trench. Then mark off another breadth of twenty inches, and regularly dig the breadth one spit deep, and throw the earth into the first trench. Then dig the same breadth a second spit deep, and throw this on the top spit which is at the bottom of the trench, and thus work piece after piece regularly, till you come to the last trench, when the first wheelings will fill that up. In throwing out the second spit of each breadth, it is right to leave it ridged up, as by this plan a much larger surface of earth is exposed to the air. There are other and simpler ways of doing this, but it needs a little experience to adopt them. I generally take out a breadth of one spade wide, throw it forward a little, then a second spade from the trench so formed, which is thrown the other side; there is a narrow, open trench, ready to re-

ceive the next top spit, on to which the second spit is thrown, and every spade breadth is worked forward a little, so that there is soon plenty of room for working, and a breadth of two spades wide always open. This saves wheeling, and raises the ground at one end, and is an easy way of preparing a piece of sloping ground in autumn for early spring crops. Or, if a slope is not wanted, the second digging, which it should have in spring, when seed-beds are made up, may be commenced at the end which is lowest, and by working a little forward again, you bring it to a level, this time, of course, digging one spit deep only.

This sort of work should be commenced in the autumn, as the various compartments become vacant. The ground always works best in fine weather, just after rain. If the top is wet and soddened, it is more harm than good, even to tread on it, but as the weather at the fall of the year is uncertain, every opportunity should be taken to ridge up every yard of land not occupied, for if it lays for a week only for sun, rain, and air to get upon it, its fertilising power is vastly increased. Where you do not intend to have a winter crop, let the ground lay in ridges till spring, and in ridging it up for the frost, break it as little as possible, but throw it up on the ridges in large blocks or cakes, each block will then get frozen through, and in spring will crumble down as fine as potting mould. If you are not afraid of work, you may, after there has been a few weeks' frost, turn these ridges over, so as to change them, the top of each ridge being put into a furrow, and the furrow made into a ridge, so that every fragment, for two feet deep, if possible, shall be crumbled by the searching fingers of Jack Frost. The result of this thorough digging and shifting will be, that your root-crops will be finer than you ever saw them before; carrots and parsnips will dart straight down, as deep as your spade has gone, and produce crops of immense weight, and the labour bestowed in winter digging, will, the next summer, be rewarded by the little need you will find for the watering-pot, while everything will be finer, earlier, and more abundant. One thing you must guard against. If your neighbours catch you bringing up the hazelly loam from underneath, they will tell you it is madness, for folks have a strange horror of such deep digging; but try it for yourself, and you will thank me for so strongly urging the matter on you—at the same time, it is not every soil that should be so treated, and your neighbours and labourers may give you many wholesome advices, as to what the soil is fit for, and how best to manage it, for all of which be thankful, for a bit of practical knowledge gained on the spot, is worth all the generalities that ever pen committed to paper.

THE WINGED PEA.—This pretty annual is a favourite of mine, and as it appears to be little known, I shall be happy to distribute seeds to the readers of the "Floral World." Last year 1,500 packets were distributed to readers of the "National Magazine," but I saved a few for myself, and have now about a pint. As half-a-dozen are as many as I want, it is a pity for them to become a prey to mice or mildew, especially as it does not yet appear to be entered in any seed lists. It grows very dwarf and bushy, and must be sown four inches apart. The blooms are rich crimson and black, and the pods being winged, are as curious as the flowers are pretty. I will enclose half-a-dozen in every stamped envelope that may be forwarded to me till they are all gone—"first come first served."—SHIRLEY HIBBERD, *Stoke Newington.*

VALUE OF LEAVES.—Payne and Boussingault give analyses of leaves from several different trees. Taking the average of all their analyses, leaves contain 1·13 per cent of nitrogen, together with a large amount of mineral and carbonaceous matter. Common barn-yard dung, according to the same chemists, contains 0·41 per cent of nitrogen; and it may be confidently asserted that leaves are worth, therefore, three times as much as common barn-yard manure. Every good gardener makes them into a compost with weeds and other rubbish of the garden or orchard.

THE CHINESE POTATOE.—THE CUSTARD MARROW.

Like all the rest of curious and enquiring folks, I have grown these two new esculents, and with such satisfactory results, that I gladly take this opportunity to commend them to readers of the Floral World, as no time should now be lost by those intending to give them a trial. Whether the yam (*Dioscorea Battatas*) will ever supersede the potatoe is to me very questionable; but, when well treated, both as to culture and cookery, it is a really valuable addition to our kitchen-garden stock, and it is so thoroughly hardy, that it may be grown anywhere in the three kingdoms. As it is new, large roots are only to be had by paying a good price for them, and as the majority of growers will trust to little sets of the size of hazel nuts, I must caution them not to

expect a very substantial dish the first year; in fact, unless large sets are used, it would be vain to hope for any for cooking purposes the first season. By the annexed cut, the reader will observe that the yam grows with its thickest end downwards, and as a matter of course, it requires a deep well-worked soil, but it need not be rich; indeed, good loam, without manure, produced me a better crop than a prepared rich compost which I used the first year the yam was made public property. It likes a deep rather sandy loam amazingly, but a wet clay is quite unfit for it. There are several modes of propagating the plant; namely by the buds in the axils of the stem, just as you would increase a valuable new kind of potatoe—for let me tell you potatoes are as easily propagated from cuttings as dahlias are—by suckers from below, and by whole or divided tubers. It is now so cheap and accessible a thing that there can be no temptation to cut the root into very small sets, for as they lie dormant for some time, small pieces are apt to decay, hence the roots should not be cut up too small, and if large specimens are expected for cooking next autumn, good sized whole sets should be used. Plant any time in April, but the earlier the better; the beginning of May

is the latest time they can be planted. Let the ground be well dug, and at least two feet deep, and if the soil is naturally shallow, throw the earth in ridges, and plant on the top seven inches apart. At the end of the season, when the foliage begins to get shabby, they must be taken up by trenching out the rows; the tuber being thickest at the lower end, they cannot be drawn even when well loosened, without wounding them. The way to cook it is to boil it but a few minutes, according to size; if boiled as long as a potatoe it is waxy and insipid,

but when the proper mode of cooking is once hit upon, the yam is deliciously white, mealy, and of a most agreeable flavour.

The Custard Gourd, one of the most curiously-formed of the interesting family

of squashes, is the best of all the marrows for a summer vegetable. The ordinary culture of gourds is all that it requires—a rich loam and plenty of rotten manure; or better still, a soil formed chiefly of pond scrapings, which is the best of all for every kind of marrow, cucumber, and melon. Sow in a moist hot bed any time from March to June, and grow in frames in the same way as any other marrow. If you have no frames, make up a bed of warm dung, with six inches of loam on the top, and sow the last week in April under hand-glasses. There will be sufficient heat to start the plants, and by giving air by degrees, the glasses may be removed by the time the plants have three or four rough leaves; after which time they require plenty of water in dry weather. I have long been in the habit of growing fine cucumbers, marrows, and melons on this plan, using a lot of litter mixed with dung, leaves, &c., to cause a moderate and continuous bottom heat, and protecting the plants with hand-glasses only, or even with bottomless flower-pots, with a pane of glass laid over the top till the summer was sufficiently advanced to allow of their full exposure. The custard marrow should not be allowed to grow to its full size for cooking purposes; I prefer them when not larger than a half-pint beer measure; they then require but a few minutes' boiling, and when mashed up with butter and pepper, are a dish in every way fit to be "set before a king."

AN OLD GARDENER.

HINTS ON THE CULTIVATION OF THE PELARGONIUM.

BY MR CHARLES TURNER, OF THE ROYAL NURSERY, SLOUGH.

THE successful cultivation of the Pelargonium very much depends upon its treatment in the autumn: it is not possible to have fine plants in bloom in May or June, unless due attention has been paid to them in the previous autumn. This is especially the case with young plants; they should have prompt and constant attention, and every assistance that they can have from the moment they are struck. Any delay in potting when needed, allowing them to be a prey to aphides, or neglect in any particular, will surely tell injuriously upon the bloom. The following hints are, therefore, offered in reference more especially to new plants from the nurseries. First, as soon as the plants are received (and the earlier they are received the better), let them be made as clean as possible; stir the surface of the soil a little, and place them in a light airy situation to recover the effects of the journey; two or three days will generally be sufficient for this. Then examine the roots, and, if needed, (which will usually be the case) repot them into the next sized pots; good mellow loam, enriched with an equal bulk of stable litter laid together a twelve-month previous, and occasionally turned, will, with the addition of a little silver sand, be a suitable compost. Put a stake to each plant, and let them have regular attention to watering, air, and light; in three or four weeks they will be ready for another shift into the next sized pot, in which they may remain until the end of January or beginning of February, when they should be put into their blooming-pots, using pots suited to the strength of each plant, and bearing in

mind that as it is necessary that the pots be well filled with roots by the time the plants come into bloom, care should be taken not to *overpot*. As soon as the lower leaves turn yellow in the spring, a little clear weak manure-water may be used with advantage, and be continued until the bloom is nearly ready to expand. Anything like forcing should be avoided, but a little fire-heat will be beneficial in damp, dull, and foggy weather, and also whenever the temperature sinks to near 40 degs.

Cleanliness is also a very important thing to attend to in the culture of the Pelargonium. No dead foliage should be allowed to remain on the plants, and if the green leaves become dirty or dusty, they should be carefully washed, and the glass of the house, both inside and outside, should be kept quite clean. Fancy varieties require similar treatment to the large kinds; they will, however, bear a little more heat with advantage through the winter and early part of spring, taking especial care to avoid "drawing" of the shoots.

As a general rule for both classes of Pelargoniums, health and cleanliness must be attended to, airing well even in winter, but avoiding cold draughts of air, and keeping them free from damp. No flower is more easily cultivated than the Pelargonium, yet none is more generally mismanaged.

Immediately after blooming, the plant should be placed in any situation not exposed to heavy rains, where the wood can be well ripened, and water be sparingly used. Hard well ripened wood is most essential. After cutting down, the plants should be placed in a greenhouse or frame by themselves, and kept dry, and exposed to the sun and air, using the lights only to protect them from rain. In about a month afterwards, the buds will have pushed sufficiently for repotting the plants; they can then be shaken out, removing all the soil, and the roots pruned. The plants should then be potted into small pots, and be kept in a close-shaded frame for a few days, and be gradually inured to the light, when more air may be given. Water but sparingly, and avoid wetting the foliage during the winter months. When the growing season has arrived, water them thoroughly when they require it. A good head of fine bloom can be obtained by attending to the foregoing few brief remarks.

DRYING PLANTS AND FLOWERS.

YOUR excellent directions, given to "N. K.," in page 47, if properly attended to will secure success. But I would suggest an improvement. It is what I practised from twenty to thirty years ago, and my collection is as fresh and beautiful as at first. Prepare several tablets of plaster of Paris, of the size of the book in which you intend to mount your collection; they should not be less than an inch in thickness. The plaster should not be mixed very strong. The lighter they are, the more absorbent. Any plasterer would prepare them to order. When they are thoroughly dry, lay the blotting-paper on the plaster, then the plant, covering it with more paper, as you direct, and then plaster, slab, and so on, forming a pile. The plaster absorbs the moisture from the paper so rapidly as to hasten the process, and thereby preserve the colour. Before the tablets are used again, the moisture must be dried out before a fire, taking care not to expose them to a greater heat than the hand can endure. They will then last for many years.

Hanley. L. J. ABINGDON.

CULTURE OF BOUVARDIAS.

HAVING grown these succesfully for many years, I beg to offer my brother cultivators my mode of culture, it is thus: March being a good time to propagate it by the roots, I proceed to shake them out of their pots, and cut as many pieces of roots from the plants as are required, placing them round the sides of the pots, in sandy peat, giving them a gentle heat, and in about a fortnight, or three weeks at the most, these will have become a famous lot of young plants. As soon as they are strong enough, I pot them off, using peat, loam, and sand; giving a little more heat, and then hardening them off. By attending to the above mode, hundreds of plants may be produced in a very brief space of time.

J. C.

NEW FRUITS.—THE STAMFORD PIPPIN.

The annexed woodcut represents in outline the new apple, "Stamford Pippin," which has now established itself as a first-rate variety, having twice received the commendations of the Pomological Society. The fortunate producer Mr. John Laxton, jun., F.H.S., who furnishes us with the outline, informs us that it was raised at Stamford in 1840, and is the result of a natural crop.—He states that, out of a considerable number of seedlings transplanted from a flower-pot, the subject of our engraving was the only one after three years' growth selected for preservation; this preference being shown to the "Stamford" from the much stronger habit of growth, and larger size of leaf evinced by it over all its fellows. The fruit is supposed to be the offspring of the Orange Pippin crossed with the Ribston; it is chiefly remarkable for its rich vinous flavour, its firm, yet digestible flesh, and the highly prolific quality of the tree. The fruit is a large size, ripens about the last week in October, and will keep well until the months of February and March following. In colour, it is a fine yellow, with a slight orange tinge on one side, and the surface is here and there a little russetted. The stock, we understand, is in the hands of Messrs. Wood and Ingram, of Huntingdon, who intend letting it out in the ensuing autumn at a cheap rate.

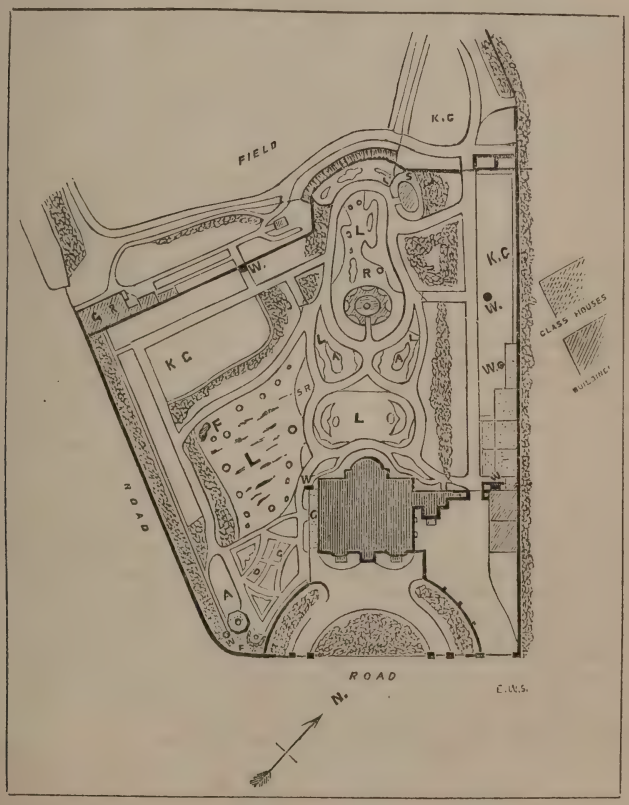
GARDEN PLAN.

GARDENING was the occupation of Adam and Eve *before* sin entered the world—"The Lord God *planted* a garden in Eden."—Into this garden our first parents were introduced "*to dress it*" and "*keep it.*" But it is to be regretted that by means of a fruit, man's fall was accomplished, and in a grove of trees, he first hid from an offended God. His first garments (necessitated by sin) were of fig-leaves.

However, we see that *sinless beings could derive pleasure from the cultivation of plants*

Cannot, indeed, to guilty man restore
Lost innocence, or cancel follies past;
But it has peace, and much secures the mind
From all assaults of evil."

In planning a garden, the proverb, "It is art to conceal art," must in many respects be considered a false one. Neil is much nearer the mark, when he says "our art lies *in endeavouring to adapt the productions of nature to human taste and perception*, and if much art be used, do not attempt to hide it:—



—although thorns and thistles are the results of the Fall, still much happiness is yet derivable from a garden. "I cannot but think," says Addison, "the very complacency and satisfaction which a man takes in these works of nature, to be a laudable, if not a virtuous habit of mind."

"Oh bless'd seclusion from a jarring world,
Which he thus occupied, enjoys! Retreat

"Yet just *arrangement*, rarely brought to pass,
But by a Master's hand, disposing well
The gay diversities of leaf and flower,
Must lend its aid t'illustrate all their charms,
And dress the regular, yet varied scene."

The accompanying arrangement is not given as a specimen garden plan, but it has been arrived at by successive alterations, and its advantages appreciated by many; it may, therefore, convey useful hints to those who

intend laying out an enclosure, of whatsoever shape or size :—

In the formation of a garden plan, one of the chief requisites, a good supply of water, must be considered—and within reasonable limits the more watering places the better. Such are marked (w) in the accompanying plan. With the aid of connectable lengths of gutta percha pipe they are found sufficient.

The front garden being only separated from the high road by light iron railings, is principally stocked with evergreens, the border being filled with geraniums, verbenas, calceolarias, fuchsias, and common annuals. In sowing these latter, a rule often overlooked, must be regarded—it is, that border plants should be arranged *in the order of their height.* This principle, recognized by Cowper, is constantly neglected in the present day, small and delicate flowers being hidden by shrubby plants in front. Arrangement as to height, well attended to, will produce effects otherwise unattainable.

> "Plant behind plant aspiring, *in the van*
> *The dwarfish, in the rear* retired, but still
> Sublime above the rest, *the statelier stand.*"

It will be seen from the accompanying plan, that a screen of trees effectually divides the vegetable garden (K G) from the flower parterres and lawns (L); G R the gardener's residence ; H, a *ha-ha*, separating field and plantation from flower garden ; R, in the centre of the plan is a rockery, (surrounded by dwarf roses, fuchsias, &c.) encircling a basin containing gold and silver fish, a raised central vase, and fourteen grouped fountain jets. This rockery contains upwards of eighty varieties of dwarf plants.* A summer-house (S) is situate at the bottom of the garden next the field ; this is of rustic oak-work and open in the front and at the sides. From hence a view of the distant railway, viaduct, and open country is obtainable. S R is a bed devoted to standard roses, which are freely scattered over the other beds. Here we may remark on the beauty of the standard roses of the present day, and at their marvellous prices, placed as they are within the reach of most of their admirers. —Nero would now have a difficulty in spending £30,000 † on rose plants for the decoration of one banqueting hall—and the Cleopatras of A.D. 1858, will find it no easy matter to lay out £200 at one time in purchasing these flowers. The old Greek poet, Anacreon, was alive to the beauties of the rose when he sung :—

> "Nymphs who haunt the embowering shades,
> Poesy's enchanting maids
> Woo thee, Rose ; thy charms inspire
> All the raptures of the lyre.—
> Cull we straight the inviting Rose;
> Shielded by the thorn it grows.
> Cull the rose : what boots the smart?
> Countless sweets regale the heart."

To return to our plan. D G, shows a Dutch garden situate near the greenhouse ; F, is a fernery with rock-work arches. The circles on the lawns denote positions of favourite trees ; O, is an octagonal greenhouse, painted Crystal Palace style.‡ In the centre are tables and chairs, and the gas being laid on, it is a favourite resort for summer evenings.

At the side of this conservatory is another fountain and fernery, the former being supplied from a tank hidden among the trees. A waste pipe in the upper vase, forms the means of supply to a small overshot water-wheel in the rockwork. From this wheel the water flows to a lower basin. C, is a greenhouse in connection with the residence —at one end is a collection of exotic ferns, ten jet fountains, miniature cascade and turbines—at the other end is an ironwork fountain, with ornamental basin.

The forcing and orchid houses are to the extreme right, and hidden by a screen of trees and shrubs. In this garden, I am informed, there are 26 varieties of thorns. A shows the position of American beds stocked with rhododendrons, azaleas, and bordered with heaths. In conclusion, let me observe that much is to be learnt from a flower garden, however small it may be. Among other things, we are reminded that—

> Mankind are fleeting as the flowers—
> Grief is their tempest—tears their showers!
> Hearts, like buds, are nipp d by cold,
> Ere they their tender leaves unfold :
> But though they fade 'neath falsehood's blight,
> Kind Heaven shall shed restoring light.
> *Let dark despair oppress thee never,*
> *The setting sun is rising ever !*

Bellefield, Essex. E. A. COPLAND.

* A list of these shall appear if desirable.—[Very desirable. ED. F. W.]

† See Suetonius.

Concave surfaces, blue; convex, yellow; horizontal planes, red; vertical planes, white.

MR. BROOME ON THE CULTURE OF THE CHRYSANTHEMUM.

The Chrysanthemum is one of the most fortunate of flowers; its popularity increases, and keeps pace with its steady improvement, and it is a favourite everywhere, even in the murkiest of otherwise flowerless cities. There are now as many separate societies established for the encouragement of its culture, as ever the Tulip had in its palmiest days, and the annual Exhibitions are thoroughly established as the most popular of floral fêtes. Coming at the very close of our season, its grandeur is, perhaps, more conspicuous than it would be were it a competitor with our summer flowers, and it is indeed a noble *finale* to the annual festival of the bright goddess Flora. An immense number of treatises on Chrysanthemum culture, have appeared within the last three years, and now Mr. Broome, who has done so much to vindicate its claims as a London flower, gives us the result of his twenty five years' experience in a neat little pamphlet. The tone, getting up, the style, and the actual information conveyed are all alike worthy of him and his especial pet.* There is, too, in Mr. Broome's book, much that is positively new, and that which is not new, is agreeably told, and every direction is conveyed in the plainest language. This work may be compared with any previous publications on the subject without detriment, and we commend it to the Floral World at large as a valuable contribution to the literature of the garden. In reading it, we marked a number of passages for quotation, but we find that we have room only for a few, and these we offer as specimens of a work which we should hope, everyone of our readers will at once become possessed of. Mr. Broome recommends as the best compost for the Chrysanthemum one half stiff loam, one third decayed frame dung, and one sixth pit or river sand. For the growth of plants in the open-air border he gives the following directions:—

"BORDER CULTURE.

"The plants having been kept over winter in a sheltered spot, in March or April they are to be divided, and planted for flowering; the ground having been well turned over previously to the depth of eighteen inches or two feet with Parkes's fork, and dressed with rotten dung or other manure. With those, however, which break later, and whose suckers are but just appearing above the ground, great care should be taken; they should not be disturbed until later in the season, but should be completely covered with finely sifted ashes, sawdust, or leaf mould, and allowed to remain so until the time for planting.

"When the young plants have reached the height of eight or ten inches they must be pegged down, which not only prevents them from growing too tall and overrunning the other flowers which bloom during the summer and early autumn, but preserves the foliage around the lower portion of the flower-stem, and saves a good deal of labour in tying up; of course, this treatment need not be applied to those plants which are intended to form back rows, or to bloom against walls or palings. When, after this, they again reach the height of one foot or eighteen inches, commence tying them up to slender sticks, which can be procured in bundles for the purpose, and continue doing so until they show their flower-buds.

"In the heat of the summer, when the plants begin to flag and the fibres to show themselves on the surface of the ground, a top-dressing of dung or mould should be given them, and great attention paid to their watering. The plant being of a succulent nature requires a great quantity of fluid nourishment, which should be given to it regularly twice a day, in the evening and at early morning, before the sun has got any great power. Manure water, without copious doses of which fine flowers connot be insured, and which can be made by adding water to horse,

* "Culture of the Chrysanthemum, as Practised in the Temple Gardens, with lists of plants, &c., &c.—By Samuel Broome, F.H.S. The Lodge, Inner Temple Gardens.

cow, or sheep dung, (about a pound by guess, of the first, and half that quantity of either of the other two, to the two-gallon watering pot,) should be used at least twice a week, but *oftener* if possible, until the flower-buds begin to show their respective colours, when it should be discontinued, and plain water only be given until the autumnal rains render even this unnecessary.

"LARGE FLOWERS FOR EXHIBITION.

"*Cuttings* should be taken in the beginning of November from the suckers, or from the laterals of the flowering stems. These should be rooted in small pots, and placed in a cold frame for protection through the winter; shifted, as soon as the roots are fairly formed, into larger pots; and kept on shifting from stage to stage until they are ultimately settled in their blooming-pots, which should not be less than 'number sixteens,' and in the bottoms of which, to the depth of four or five inches, should be put layers of broken potsherds or pounded oyster-shells to insure good drainage. Care should be taken not to allow the fibres to rise round the pots too much before shifting, as this very much injures the plants, and their progress will be materially retarded if they are not repotted at the proper time; moreover, the fibres must be as little disarranged as possible in the operation.

"In April and May a south aspect is desirable for the plants, but from the middle of June to the Middle of August they should be removed to a shady spot, where they will only get the morning sun until eleven. Manure water of a weak and cooling nature should be used in the former months, but its strength should be afterwards increased until the flower-bud begins to give indications of colour; in no case, however, should it be given until the plant has been previously well soaked with plain water. When the crown divides itself, take off all laterals; and when the flower-buds are well grown, disbud or cut out all but the brightest and most shining, leaving but one to each stem. Should any of the blooms on breaking, show an eye, it is a sign that the plant has been overdone with kindness. If the early blooms are too soon for the late ones, they may be retarded for a week or nine days, and their back petals be preserved from decay, by gathering them into a ball and tying them up with some wadding, and then putting them into a bag made up like a sugar paper. Another plan is to pass the bloom through a flowerpot, of which the bottom has been previously chipped out, and to cover it with a piece of glass. This has the effect of not only preserving the back petals, but of bringing the centre ones up to the light. In fact, it will make an incurved flower of a reflexed one.

"Many florists recommend, as a rule, for the increase of flower and foliage, the growing in every instance of standard plants, which are formed by planting the young shoots singly, and *stopping* them when their stems have reached the height of five or six inches. By this means an increase of flower is certainly gained, but always at the expense of a very slovenly and bare appearance around the lower part of the plant. Stopped specimens are very well for filling up gaps here and there, but flower-beds completely filled with them look unsightly.

"POMPONES.

"Pompones should never be stopped at a greater height than six or seven inches above the mould in their pots, and should be treated as follows:—Carefully take out the leader, (but avoid above all things taking more than you can possibly help,) by so doing two or three extra breaks are gained; then when there are, say, six or seven breaks to each shoot, commence pegging them carefully down, in the same manner as Verbenas and plants of that description are pegged, taking care not to snap them in the operation, as they are very brittle, especially in and after wet weather. Continue stopping their laterals until the first of August, then cease doing so, and place every branch in the position in which it is intended to flower. Avoid a preponderance of sticks in the flowering-pots, hoops of wire-work being far more graceful.

"VARIETIES FOR EXHIBITION.

Mr. Broome enumerates the following Pompones as the best for exhibiton in eight-inch pots:—

"Adonis, Aurore Boréale, Apollon, Bijou de l'Horticulture, Bob, Brilliant, Cedo Nulli, Dr. Bois Duval, Drin Drin, Durufflet, Giralda, Hélène, La Vogue, Madame Foule, Modèle, Mustapha, Président Decaine, Riquiqui, Sainte Thais, Vicomte de Caumont, Zebra, Polycarp, Crœsus, Donna Alba, Ida, Ascanie, Alexandre Pélé, Trophée.

"Large specimens for show in 11-inch pots may be grown on one stem, the same as the Pompones, except the pegging down; this, of course, must be dispensed with, and the plant supported with sticks put in the ground on the outside of the pot. When the buds shew themselves, you must thin out to one or two blooms on a branch; in all other respects treat as the Pompones, by stopping early to get a large head with a good foliage, watering and keeping the outside of the pot moist, and protecting in autumn from the frost, cold winds, and rain.

The sorts best calculated for this purpose at present are:—

Alfred Salter, Auguste Mie, Cardinal, Christine, Christophe Colomb, Golden-clustered Yellow, Hermine, Lucidum, Lothario, Madame Comerson, Mount Etna, Phidias, Pilot, Princess Marie, Plutus, Queen of England, Ruth, Trilby, Vesta, Zephyr, Eugénie, Madame Domage, Augustine, Progne (extra fine), Madame Léo, Aimée Ferière, Louise Constantine, General Havelock.

"CUT BLOOMS FOR EXHIBITION.

"The best incurved flowers for cut blooms for exhibitions, to grow in pots or open borders against walls, &c.:—

"*Large varieties.* — Alfred Salter, Anaxo, Annie Salter, Arigena, Auguste Mie, Beauty, Campistroni, Cassy, Christophe Colomb, Delight, Dupont de l'Eure, Elizabeth, Etoile Polaire (extra fine), Hermine, King, Léon Leguay, L'Emir, Lothario, Madame Miellez, Marquis de Molleville, Nonpareil, Pio Nono, Phidias, Queen of England, Rolla, Rosa mystica, Stellaris globosa, Themis, Two-coloured Incurved, Trilby, Vesta, Zephyr, Aimée Ferière, Madame Léo, Admirable, Golden Queen of England,* Baron Scalebert, Louisa, Pius VII., Aristée, Madame Andre, Plutus, Clustered Yellow."

The work contains copious classified lists in which all the best *varieties* are arranged according to colours; other lists in which they are arranged according to relative heights; and a full alphabetical list of the varieties growing in the Temple Gardens.

HAYTHORN'S HEXAGON GARDEN NETS.

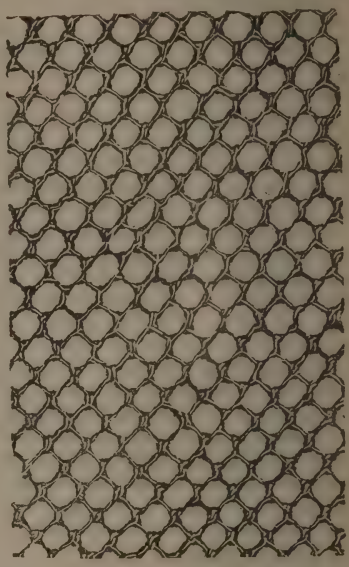
THE old plan of sheltering wall trees by means of spruce boughs, is one that finds favour with few modern gardeners, for though such a protection is very effectual against spring frosts, it keeps the young growth so dark and coddled, as to be almost as hurtful in another way. It is astonishing how frail a medium will suffice to keep off those sharp night frosts that commit such vast havoc with our tender early blooming fruits. A light net of even a quarter-inch mesh we have found to effectually protect the bloom on peach walls during spring frosts that have been severe enough to cut off the greater part of those not protected, and it is now well known that the falling of fruit, even after it has begun to swell, is, in the majority of cases, attributable to a chill endured by the trees when in bloom, or, perhaps, even before the bloom had opened.

At this season of the year, the value of netting can scarcely be over-estimated, and we commend to the immediate consideration of all who are looking forward for a good crop of fruit, the best of all protectors, Haythorn's Hexagon Garden Net. This material not only excludes frost, but admits as much light as glass; there is none of that roughness of character which most other protecting materials have, and which often prove destructive by snapping off fruit-spurs, and otherwise injuring the trees in being put up or removed, and the closeness of the mesh renders it protective against storms of wind, hail, and rain as well as against frost. When done with for the walls, it will be found useful as a shading for pines, and for greenhouse plants, and

* Golden Queen of England will not be let out till next season.—ED. F. W.

when the fruit on the walls is ripening, it may be replaced to protect it from wasps, which do much havoc with choice fruit when they have free access to it. It would also be useful as a retarding material for fruit bushes; indeed, it is capable of so

many uses in and about a garden, that it may be fairly set down as one of the necessities to the successful prosecution of the art. Mr. Haythorn makes a variety of patterns and sizes; we have in use three kinds, namely:—No. 1, No. 5, and No. 20; the latter is a new kind, called the Chiswick net, the texture of which is very close, as indicated in the engraving. The nets are made in various widths, from 3 feet to 17 feet, and of any length, so that it may be



ordered so as to fit a whole range of trees. The prices range from 3¾d. to 2s. per square yard. The lightest and cheapest patterns are sufficient to repel any ordinary spring frosts.

APRIL WORK IN THE GARDEN AND GREENHOUSE.

The month of April is one which generally tests severely the cultural capabilities of the gardener, as well as his ways and means. The weather may be summer one day, and winter the next; and inexperienced hands may easily be led astray by the temptations of warm showers and sunshine, to regret, afterwards, the havoc caused by sudden frosts, storms, and even snow and hail. Since the 12th of March, the weather has been unusually mild, and the severe check given to vegetation by the frosts early in the month, were most salutary, as tending to check the readiness most plants have to make a start at this season, on the advent of even a few days fine weather. By the time this reaches the reader's hands, we may be glad of protecting material to keep out frosts, or parching winds may be committing havoc with things that have been unduly exposed by the temptations of the first dawnings of spring, which, in this climate, are always more or less deceptive. In the general work of the garden, many of the directions—especially as to sowing—given last month, apply to this, and more particularly to those who live in exposed districts. We write for a London climate, and our directions are based on the general practice of gardening in and about Middlesex, Surrey, and Hertfordshire. Those who live far south, in the almost Italian climate of

Devonshire, will often have things up at the time we are instructing them to sow; while residents on the bleak Northumberland coast, or in the eastern parts of Scotland, will always be a fortnight, sometimes a month, behind us. This is a difficulty inherent to all calendarial directions, but it does not interfere with such a form of information. The *order* of doing things is still the same, let the peculiarities of climate be what they may; and it is for every one who looks to this article for a reminder, to take it *cum grano salis*, that is, to make the proper allowances for their own districts. Many plants which southern growers would describe as hardy, would be found far from hardy in the bleaker parts of the island; and no remarks of a general kind can be expected to meet every individual case.

Kitchen Garden.—Successional sowings may be made of all leading kitchen crops, and where the work of the last month has been delayed, seeds got in early will not be much behind those sown last month. Sow Windsor, longpod, and Johnson's wonderful beans; marrow and Prussian-blue peas, and a few rows of the earliest sorts, to come in before the late peas are ready. In small gardens, the dwarf kinds are always to be preferred. Sowings should also be made of horn carrot, Savoy cabbage, Brussels' sprouts, Scotch kale, brocoli, cauliflowers, and cabbages, for autumn use; a succession of such things being preferable to a glut all at once for the private grower. Among cabbages, collard's, Atkins's matchless, Shilling's Queen, early York, and West Ham are good sorts to sow now, but the main crop of cabbages should be up by this time, and must be hoed between, when the ground is in a fit state. Beet should be sown in the second week, in ground deeply dug, but not manured; the main crop of celery should be sown on a rich warm border, the surface to be made light and fine; sow thin, and merely dust the seed over. Sow, also, onions, lettuce, radish, small salad, sea-kale, and asparagus; the two last, in drills, one foot apart, and one inch deep, for asparagus, and two inches for sea-kale; another mode of raising sea-kale plants is to sow in four-feet beds, the seed to be in patches of eight inches diameter, and two feet apart, and about eight seeds in each, the plants to be thinned to three plants in each patch: the ground should be rich, well drained and deep. Beds may also be formed now by planting roots, but the best plantations are those raised on the spot from seeds. Those who purpose raising seedling rhubarb plants, should sow about the middle of the month, in shallow drills, eighteen inches apart, dropping the seeds in patches, six inches from each other. All the varieties of the gourd family may be sown out of doors this month, in turf or brick pits, according to the instructions given at page 70 of our last number. Potatoes not yet planted should be got in without delay, and towards the end of the month scarlet runners and French beans may be sown; the runners should have a warm dry position until the first of May, when they may be sown in almost any soil or situation without risk; but, like most other things, yield the best crops on ground well dug and manured. The main crop of carrots should be got in towards the end of the month, and there is still time for a crop of parsnips, if none have been sown yet, and as a small crop of so useful a vegetable is better than none at all, those who have delayed may still secure one. Slips of kitchen herbs may be put in any time this month, and will root quicker if planted in a rather dry sandy border. Peaches, apricots, and nectarines should be carefully disbudded, and as soon as the bloom is set, give the walls a shower from a garden engine, to clean the trees and dislodge the pests that are ready to make havoc with the young fruit. Grafting may still be performed, but not a day should be lost.

Flower Garden.—Seeds of hardy annuals and perennials are to be sown early, and towards the end of the month the more tender kinds may be safely committed to the ground; but very small seeds of choice things had better not be sown till next month, as heavy rains may wash them down into the soil, and they may be lost. Perennials may be planted out, and old stools of phlox, chrysanthemum, sweet William, &c., may be parted. Dahlia roots may also be planted, and if the shoots appear before night-frosts are over, they may be protected by flower-pots inverted over them, and the holes stopped with pieces of tile. Where early beds of dahlias are required this plan may be adopted in the putting out of young plants, and if well hardened first, the beds may be filled about the middle of the month, and inverted pots, litter, or netting, used to protect them during fits of cold wind or frost. Box edgings should be clipped, and ivy may be cut in and trimmed, and fresh plantations made of last year's roots. Cuttings of ivy may also be taken and planted in a sandy border, only partially exposed to the sun. The cutting should be short-jointed, and trimmed of the lower leaves. Tigrida bulbs

may be planted two inches deep. A light netting, or some similar protection will be found useful now as a protection to tulip beds, and if the foilage gets frozen, water them with cold water before the sun gets on them. Walks should be turned and rolled, and grass plots dressed, so as to give an air of neatness and order to the whole of the ground.

Greenhouse.—If bedding-stock is still in request, cuttings should be struck in a brisk heat, even as high as 90 degs.; they will bear much more heat now than they would a month ago. China roses may be propagated in pots by taking off young shoots close to the old wood when four inches long, and plunging in a moderate heat. General collections should only have a moderate heat, and a strong healthy growth should be promoted by giving plenty of air, with a view to putting out the fires for the season. Many specimen-plants will want liberal shifts, and all subjects not immediately required in flower, should be regularly and frequently stopped to induce bushy growth and form good heads. Water and liquid manure must be more freely given, and vigilant efforts must be made to keep down green fly and thrips. Many of the less tender things may be removed to cold pits, to increase the room for other things that want continued protection to make fine plants. Young stuff from the propagating house should be potted as fast as rooted, and kept close till started afresh, and then be gradually inured to air and light, so as to be strong by the middle of May. All tropical plants required for summer blooming in the house, should be got on without delay, and a quick growth promoted so as to allow them as long a season as possible for blooming, and ripening their buds for next season. Average temperature this month 55 degs. by night, 60 to 65 degs. by day. Where desirable, the house may be shut up with sun heat to render fire unnecessary.

Stove.—Vines in bloom must be kept close, and with a little extra fire-heat to prevent injury from damp setting on the berries; melons should be encouraged to make quick growth until established, and then kept cooler to encourage the production of fruitful wood; but do not stop the main shoots till they have extended as far as the space allowed them, and then they may be stopped to promote the growth of laterals. Pines will want shade on bright days, and air as often as possible, but the atmosphere about them must be kept moist, and the roots well soaked whenever the soil about them is dry. Red spider will now be getting active, and must be kept down. Keep also a good look-out for green-fly, especially among young stock. Average temperature for pines, 70 degs. at night, 80 degs. by day; for general collections, 65 degs. by night, 75 degs. by day.

THE PLEASURES OF A KITCHEN GARDEN.

BY SHIRLEY HIBBERD.

However refined may be the pleasures attendant on the culture of flowers, and the production of scenic effects in ornamental gardening, a few rows of well grown edibles have special charms for most people. What can be more jolly in appearance than a well stocked kitchen garden in autumn, when the potatoe ground has been cleared and planted, when many of the summer crops still linger to say "good bye," the bowery "runners" still holding their blooms, and weighing their sticks down with thousands of tender pods; the kale and brocoli and winter cabbage dressed up in their hearty green, like files of riflemen, full of strength and suggestive of knife and fork battles before good fires, when the beef will have its right flavour, because honourably accompanied? Peep into the shed or store-loft of the good gardener, and see the rosy-cheeked and russet apples stored away all shining with ripeness, and beating the sweetest flower bed in their perfume; the onions drying ready for the very goose that is wadling yonder; the potatoes swelling their sacks tight, every tuber of them ready to transform itself into a snowball; all reminding you of baked and roasted delicacies, that butter and pepper are to make additionally savoury on winter nights, or that at Christmas—the grand feast of the year—are to proclaim gardening to be the homeliest, the prettiest, and the most profitable of arts. Then in early summer, what among gardening scenes more attractive than the rows of peas laden with snowy blossoms, like clouds of butterflies, or trying to topple their stakes over with their weight of plump pods, that make your mouth water as you involuntarily conjure up the smell of the mint that goes before them to the

table, and the mingling of the green marrowy smoking things, with the brown gravy, that compels you to chuckle "delicious!" as the palate revels in their flavour. See, then, the pretty lettuces in their clean drills, so delicately green and vigorous; see the tender spring onions, silvery at the root, and ready for pulling; the coral radishes, the cheerful small salads that seem to grow as you look at them, all of them hurrying towards the salad bowl, crisp, and cool, and relishing, and ready to enchant the appetite on the very first warm day that shall make a radish, or lettuce, or cucumber the very completion of table enjoyments.

Then think of the beautiful gourds that always astonish you and everybody else, at their size and rapidity of growth, and that admit of half-a-dozen modes of cooking, yet, always delicious; the fresh summer cabbages that take one leap from the morning dew to the bubbling pot, and above all things, who can know the real flavour of peas but those who grow them within sight from the kitchen door, and who eat them an hour after the gathering? These are very material considerations. The elderly dames say, "the way to a boy's heart, is through his belly," but it is the case also with most boys of large growth, for who *can* sneer at a cucumber with the bloom on, a fragrant mushroom hot from the gridiron, a basket of strawberries to dip in the breakfast cream, or even a dish of marrowy green kale with a savoury joint on a frosty day?

And there are higher pleasures, too, in this department of gardening. If our wits are not exercised in the arrangement of figures and colours to please the eye, or our ingenuity taxed to acclimatize and bloom choice varieties, there is much to employ thought, and not a few pretty spectacles, as the seasons work their changes, now smothering the fruit trees with snowy bloom, and now loading their branches with the lovely fruit; the very beet is pretty as its richly bronzed foliage meets from row to row; and as to most crops in full luxuriance of growth, there is much real beauty in a well disposed, and well kept profitable garden, the charms of which are much enhanced by the idea of utility that accompanies the enjoyment of them. One would not be in haste to condemn a poor cottager for striving to excel in the growth of flowers, but there would be greater interest in his success if we saw that his cabbage and potatoe plot were not neglected, and that in the aching of his heart for something beautiful, he did not forget the kale pot, and the appetites of his little ones. Nor would the thriving citizen, who takes a pride in his beds of asparagus, his trellises of tomatoes, and his creamy cauliflowers ever need to fear the criticism of his friends and neighbours, for that which is really useful has a dignity peculiar to itself, and makes its own assertion of its right to encouragement. Whoever turns his skill and patience to account in the creation of the material necessities and luxuries of life, finds a source of special enjoyment in the work, as well as a welcome addition to the family means, and, to some extent, adds to the resources of his country, so that in profitable gardening a national end is served when personal and private benefits are aimed at only. To be sure there are people who say that a kitchen garden is an expensive affair, for "the cabbages cost five shillings each," but whether it shall be a gain or loss depends entirely on how it is managed, whether the owner tills the ground with his own hands, or, leaves it to a jobbing gardener to dig the ground six inches deep occasionally, and charge his own price for worthless seeds and plants that are incapable of attaining a profitable perfection. By right management, on either a small or large scale, the culture of edibles is immensely profitable, as everybody knows who is practically used to it; but it is quite an easy matter for folks, who take no real interest in a garden, or who have foggy notions of economical tillage, to pay very dear indeed for their luxuries, and at last to get tired of the attempt to fill a basket at its fair market value.

The great enemy of gardening in the suburbs of towns is, not the smoke or the blight, or the exhausted soils, but the *jobbing gardener*, who fuddles away his employer's time, and his own earnings in the low enjoyment of beer. Out of any hundred of such men you will

find it difficult to select a dozen that may be trusted; they take no interest in their work, for casual jobbing is at variance with a man's pride in his craft; and between what your ground may produce, and what you may get, there may be the difference of many a parcel dropped over the wall to be converted into beer; and as to the work generally, it is of a kind that leaves the surface of things neat for a day by a sleight of hand—there is no soundness, no heart in it. I know, from an experience of more than twenty years, that vegetable culture pays well when skilfully accomplished. I could grow cucumbers and celery fit for exhibition before I was fourteen, and though I have, between that time and now, been engaged in many various pursuits, the fertile soil has always been the anchoring of my sympathies. I like to see the well-planted rows following the "right line" of the geometrician; I like to see the loam crumble from the fork; the pleasure of fruiting strawberries in pots, is worth ten times the market value of the fruit they give me, and if I were condemned to choose between flowers and vegetables, one department only to be allowed me, I should cling to the profitable garden, and give up the laughing Flora for the matronly Pomona, with a sigh of course, but not with a regret that would embitter me for ever. Depend upon it, it is no mean art that enables a man to take off potatoes at the rate of five tons to the rood, to gather a thousand cucumbers from one vine, and then strike cuttings, and go on again without the help of seed, or to manage a succession of crops, so that there shall always be plenty and variety, and not a single waste leaf to cumber the ground. It is not a sordid feeling that stimulates a man to cultivate such things as shall increase the enjoyments of his family, and prove welcome as gifts to friends; and the task of rearing handsome crops of eatables, each in perfection at its season, and some thrust out of their season, to gratify an honourable caprice, is one that has its rewards in many ways beside the profit; or, rather, the profit should be understood to include the pleasure attendant on the exercise of skill and industry, the source of health which a garden always proves to a man who loves it, and the permanent inducements it holds out to exchange the excitements of the tavern, the theatre, and quarelsome debates on politics for fireside peace, and true home comfort. And this is equally true whether a man be called to the hurry of commercial life in town, or be blest with country air and singing birds in the midst of farms and gardens. I write as I feel on these matters; I cannot bring myself to harsh prosing, when the subject invites one's heart as much as one's head, and the world is never more ready to pardon enthusiasm than when it is the sign and token of a love of out-door pleasures, and has for its end and aim the improvement of the social ties that bind the human family together.

TO CORRESPONDENTS.

VINES, WITH OTHER PLANTS. — *Amateur.* —Vines may be, and are frequently fruited very successfully in houses containing mixed collections. The best system of pruning is the one you adopt; and the vines ought to give you a good crop this season. Carry a rod up each rafter; let them break at about 50 degs., and syringe every day, taking care to keep the floor of the house as dry as possible, and to give air frequently, to prevent injury by damp to other things. If the roots are in the house, they will be sufficiently active to maintain the progress above; but, if out of doors, they ought to be mulched over with litter, and protected from heavy cold rains, by thatched hurdles; though, if the border is warm, and well-drained, a little mulching with dung and leaves may be sufficient. Give as much moisture in the air, by syringing, as is consistent with the health of the other plants, which will now bear a moderate increase of heat and moisture, without injury, if they have plenty of light. Increase the heat gradually to 65 degs., as the vines come into bloom; and to set them well, syringing ought to be discontinued, and the house kept close and warm till the berries are formed. This is the time when greenhouse plants are apt to suffer, and the chief source of what little difficulty may occur in fruiting vines with other plants. As soon as the berries are set, the syringe may be used again, and air admitted plentifully, to swell the berries, and keep down pests. In a house not artificially heated, good grapes may be grown: and, of course, the natural progress of the season will determine the order of their growth; but where heat is at command, even to any amount, we should never force early, unless the house were appropriated entirely to grapes, and then the vines may be broken from September to April, according as the fruit may be desired—early or late. A gentle heat should be used at first—not more

than 50 degs.—to be gradually increased; and the secret of setting the fruit well is to keep them close and warm from the moment they begin to bloom, till the berries are actually formed, when moisture, and a gradually increased heat to 70 degs. may be used, with air at all seasonable opportunities. Of course, a great deal will then depend on the kinds of grapes grown, and, if with other plants, on their particular constitution. With general greenhouse collections we should never break vines very early, but it would be even better to wait till they showed signs of breaking naturally, as the forward state of other plants at that time would allow of an increase of 10 or 15 degs. of temperature.—The calceolaria will have early attention in our pages. The placing of the calico under the sash is to allow thatched hurdles to be slid on and off all the winter, without damage to the frames. As soon as severe frosts are over, the frames are easily reversed, and when we used such frames, that was the way we managed them. Now, however, that glass is so cheap, we would not ourselves give room for a single square yard of any substitute.

Plants for a Cool Greenhouse.—*J. R.* says, "I am often absent from home, and my greenhouse is rather neglected, and generally no fire lighted unless frosty, the thermometer often falling to 35 degs., but never lower. I, therefore, want plants that will stand this low temperature, and be none the worse. I grow Azaleas, Camellias, Plumbago Capensis, Tacsonias, Fuchsias, Geraniums, &c., very well, but want others for variety, particularly in April."—If the management of a collection in a house which never descends below 35 degs., is judicious, selections may be made almost at random, from catalogues of greenhouse plants, and the taste of the grower, not the temperature of the house, may determine the nature of the stock. The family of Ericas alone would furnish flowers for every month in the year, and there are none better adapted for such a cool house. Even *Chorozemas*, which we generally consider to require a temperature averaging 50 degs. all the winter, would do if *kept nearly dry*, and that is the turning point of the whole affair, for a temperature of 40 degs., which we take to be the winter average of the house, will keep any greenhouse, and many stove plants, and to have something to look at all the year round, there are hundreds of really choice things that would *grow* all the winter at that average. We should not hesitate to trust Boronias and Hoveas in such a house, provided the alternations of temperature were not sudden; and the list given at page 23 may be selected from according to your taste, excepting only Adenandra, Epacris, Pultenæa, Gompholobium, and Thunbergias; for early blooming, you should have *Orobus vernus, Bossiœa buxifolia, cordifolia*, and *ovata, Cytisus atleeana*, and *proliferus, Coronilla emerus, Crotalaria argentea* (subject to green-fly), *Daviesia angulata, Grevillea acuminata, Indigofera australis, alopecuroides*, and *amœna*. Anemones, *Dielytras*, Doronicums, Erithroniums, and things of that class are far from despicable to make a spring show in a cool greenhouse, The following are admirable for suspension: *Hibbertia grossulariafolœa, Rhodochiton volubile*, Maurandia Barclayana, *Æschynanthus*, Abronias, *Hedera cullisii, Davallia pentaphylla*, and Adianatum setulosum. A description of new and last year's fuchsias would take the whole space of a number. Yours is the Lady Fern, Moore's five-shilling Hand-book is an admirable work. Send a little parcel of the roots offered to 5, Paternoster-row, carriage *not* paid.

Root-stumps, &c.—*Vega.* — To use roots on a lawn, it would be best to combine them with mounds of rock, well covered with ivy, low evergreen shrubs, and such trailers as the major periwinkle, Abronia, convolvulus, &c. They are also useful about rockeries, and, if the hollows are filled with sandy peat and leaf mould, ferns will grow in them to perfection. Indeed, a picturesque fernery is nothing without plenty of well-planted roots. In "Rustic Adornments" you will find very ample instructions for the uses of roots and rocks as garden ornaments.—Cuttings of Dielytra may be struck under a hand-glass all the summer, and at this present season in a moist heat in a propagating house. They root quickly in any light sandy soil. Though we never wanted plants from cuttings, having plenty by division of roots, we have struck them all sorts of ways for experiment sake, and find that young shoots, nipped off clean and trimmed of the lower leaves, root readily, if shaded and kept moist, in ten to fourteen days. You may have hundreds of plants if you wish it, by striking them in a shady border, from the middle of May to the end of August. Any of the seedsmen who advertise in the Floral World will supply you with either seed or plants of the Pampas grass, safe by post, but it is against our rules to specify dealers.

Planting Rhubarb, &c.—*An Ignorant Gardener* —Your gardening friends may be a little prejudiced to their own ways of doing things, but you may profit by their advices, nevertheless. Practical men differ as to their methods, and yet arrive at very similar results; the grand thing is to know the principle on which an operation is to be conducted. If you are bent on planting potatoes early, stick to your text, and if you plant them properly, you need not fear the consequences. But if your friends give you a *reason* for deviating from an established rule, you may then judge of the value of the advice. Some years ago we astonished the most noted cultivator in a certain district, by trenching up the second spit of yellow loam on a piece for potatoes, and planting the crop on the first of February. But we had the crop up a month before the astonished veteran, and they weighed at the rate of one-third more than the piece on which he prided himself as the perfection of culture. Nevertheless gardeners are, generally speaking, an intelligent and thinking class; those who hold to the rules of their forefathers are the few not the many.

Those who truth and wisdom heed,
May gather knowledge from a weed.

Ornamental Foliage Plants.—*A Practical Gardener.*—Mr. John Salter, of the Versailles Nursery, Hammersmith, has an extensive collection of hardy plants, with variegated foliage. His new catalogue, contains a selection of 112 distinct varieties of the highest merit. The subject will receive our earliest attention, for we are great admirers of this class of plants, and have long enjoyed the pleasure of their cultivation. We thank our correspondent, "a Practical Gardener," for his kind encomium on the Floral World; he says—"I congratulate you upon the taste and judgment displayed in the first three numbers of the Floral World, and shall, I trust, continue to peruse its pages for a long time to come, with the same interest and gratification."

Skeleton Leaves.—*Adah* wishes to know how to prepare these beautiful objects; will some correspondent help her; for we know but little of the art. When preparing holly and other such leaves for the microscope, we have macerated in distilled water, with a drop or two of muriatic acid added to hasten the destruction of the soft parts, and then bleached with sulphur. We have lately seen some admirable examples very tastefully mounted under glass

shades; the objects selected were, fruits of the winter cherry, magnolia, holly, elm and oak leaves, and some thistle like heads that looked like a species of teazle. Perhaps our friend, Mr. B., of Reading will oblige us with some short practical hints.

DIELYTRA SPECTABILIS.—*Zinnia.* — This lovely herbaceous plant is quite hardy, and does well in the open ground. We planted half-a-dozen stools in a border some three years since, and they have so increased that we might make hundreds of strong plants by dividing them. Now is a good time to turn them out of pots, and though they will grow in any kind of garden soil, a light rich loam is the best. If you want them to bloom well this season, turn them out without breaking the ball, but if you want to increase your stock, divide the root so as to preserve a crown to each division; plant in deep rich soil and mulch with old dung, and they will grow as freely as peonies.

SLUGS, &c.—*E. R. G.*—Your only hope is in a vigilant system of trapping, and if you persevere you may get rid of every slug and wireworm in one season. Put little heaps of brewer's grains about near their haunts, and examine these every morning, and destroy every one you find. Or lay cabbage-leaves under tiles, and every morning take them up, and make away with the spoil. The best traps for wire-worm are slices of potato, or carrot, buried six inches deep, and a stick put over each, to mark it. These should be taken up once a week, and well examined, and the worms will be found feasting on the pulp.

THUNBERGIAS.—*Rose* may ensure germination if the seed is good, by sowing in peat, and plunging in a rather moist strong hot bed, or if in a Waltonian case, a temperature of 80° may be given till the seeds come up; then to be reduced a little. The stove is the proper place for Thunbergias, the soil, leaf-mould, peat, and a little old dung, and a plentiful admixture of crocks and old mortar. Summer temperature 65° to 85°, and the plants to be destroyed in Autumn, to save the trouble of keeping them, or even of preserving cuttings. No young hand can expect to keep Thunbergias over winter.

CACTI.—*J. D.*—1. Probably a Cereus, 2. An Opuntia, 3. Echinocactus, 4. Epiphillum. This is mere guess work of course, and until they flower it will be impossible to name them accurately.

VINE CULTURE.—Hoare's *first* treatise. "Lindley's Guide to the Orchard." There's an excellent short treatise in the *Cottage Gardener's Dictionary*, article "Grape Vine."

GOURDS.—*Squash.*—You Should grow the Mammoth, the Peturion, and the common Pumpkin. For delicacy of flavour, the Custard marrow.

METEOROLOGICAL CALENDAR FOR APRIL.

30 DAYS.		WEATHER NEAR LONDON, APRIL, 1857.				30 DAYS.		WEATHER NEAR LONDON, APRIL, 1857.			
		BAROMETER.	THERMOM.	WIND.	RAIN.			BAROMETER.	THERMOM.	WIND.	RAIN.
		MAX. MIN.	MX. MN. MN.					MAX. MIN.	MX. MN. MN.		
Th	1	29.460—29.279	56 44 50.0	SW	.02	F.	16	29.886—29.763	51 27 39.0	SE	.13
F.	2	29.379—29.113	58 42 50.0	SW	.14	S.	17	29.925—29.911	60 45 52.5	SW	.00
S.	3	29.772—29.495	58 35 46.5	SW	.02	S.	18	29.944—29.844	69 39 54.0	S	.00
S.	4	29.758—29.714	54 48 51.0	SE	.48	M.	19	30.131—29.878	68 32 50.0	SE	.00
M.	5	29.641—29.548	67 49 58.0	SE	.06	Tu	20	30.229—30.215	67 31 49.0	SW	.00
Tu	6	29.785—29 558	63 38 53.0	SW	.00	W.	21	30.239—30.196	62 42 52.0	NW	.00
W.	7	29.949—29.886	63 43 50.5	SW	.12	Th	22	30.965—29.952	52 38 45.0	W	.20
Th	8	29.916—29.758	60 37 48.5	SW	.11	F.	23	30.022—29.927	48 24 36.0	NE	.02
F.	9	29.602—29.501	63 32 47.5	S	.04	S.	24	29.974—29.810	49 35 42.0	E	.00
S.	10	29.465—29.370	65 39 52.0	SE	.00	S.	25	29.726—29.632	48 33 40.5	SE	.02
S.	11	29.523—29.417	50 30 40.0	NW	.09	M.	26	30.011—29.838	46 35 40.5	E	.00
M.	12	29.463—29.038	54 32 43.0	SW	.06	Tu.	27	30.061—30.011	50 32 41.0	N	.00
Tu	13	29.444—29.976	47 32 39.5	W	.16	W.	28	30.051—30.021	47 23 35.0	N	.00
W.	14	29.465—29.273	52 24 38.0	NW	.00	Th.	29	30.049—30.010	60 27 43.5	NW	.00
Th	15	29.680—29.563	55 25 40.0	SW	.09	F.	30	30.098—30.040	55 33 44.0	N	.01

AVERAGES FOR THE ENSUING MONTH.

DURING sixteen years past, the average temperature of the month of April has been:—Max. 57°; min., 39°; mean, 46½°; so that April is 5° warmer than March, 8° above February, and 8½° above January. During the same period 1.6 inches was the average fall of rain, being little different to the average fall of the three preceding months. The highest temperature observed in the month of April during thirty-one years past, occurred on the 28th, 1840: thermometer, 81°; and the lowest during the same period, on the 24th, 1854; thermometer 18°. The sun rises on the first of April at 5h. 38m., and sets at 6h. 31m. in the latitude of London. On the 30th he rises at 4h. 37m., and sets at 7h. 19m.; the length of day in London on the 15th is 13h. 47m., and on the 30th, 14h. 40m., the length of day is therefore increased 6½ hours. Saturn will be the evening star during the ensuing month.

PHASES OF THE MOON FOR APRIL, 1858.

☾ Last Quarter, 6th, 1h. 42m. p.m. ● New Moon, 13th, 11h. 15m. p.m.
☽ First Quarter, 20th, 2h. 26m. p.m. ○ Full Moon, 28th, 2h. 56m. a.m.

MEETINGS AND EXHIBITIONS, APRIL, 1858.

WEDNESDAY 14th, THURSDAY 15th, and FRIDAY 16th, Floral Bazaar at the Crystal Palace, for the Exhibition and Sale of Flowers.—WEDNESDAY 21st, and THURSDAY 22nd, Horticultural Society: Grand Spring Meeting at St James's Hall; Exhibition of Hyacinths, Tulips, Narcissi, Orchids, Pelargoniums, Roses, Fruits, and Miscellaneous Spring Flowers.—WEDNESDAY 28th, Oxford Floral Society's first Exhibition: Hyacinths, Pelargoniums, Camellias, Annuals, Foliaged Plants, and various Florists' Flowers.—THURSDAY 29th, Royal Horticultural Society of Dublin; First Spring Meeting, and General Exhibition.

*** *Secretaries will oblige by forwarding Announcements, Schedules, &c., of forthcoming Exhibitions.*

THE

FLORAL WORLD

AND

GARDEN GUIDE.

MAY, 1858.

IN a description of a Fern Case, which appeared in the first number of the "FLORAL WORLD," the writer remarks on the increasing popularity of Ferns as an evidence of a marked improvement in public taste, and expresses a hope "that the day may not be far distant, when societies, designed expressly to encourage the culture of Ferns, will be as successful, and their shows as attractive, as are those devoted to other special classes of subjects, as the Dahlia or Chrysanthemum, for instance." It is gratifying to know that, not only is the day *not* "far distant," but, nearly at hand, for a Society has actually been formed, and has already commenced operations, and this present season, the first public demonstration in vindication of the rights of the family of Filices may be confidently hoped for. The Sister Island has the honour of inaugurating this movement. Ireland is pre-eminently a land of Ferns. Its moist climate is favourable to their growth, and its romantic scenery owes much of its bewitching beauty to the manner in which waterfalls, caverns, cliffs, and woodsides are adorned by the species found in such places. It is from Ireland we obtain the rare Trichomanes radicans, which is found "attached to dripping rocks, and the walls of caves, in shaded glens, and the vicinity of waterfalls." The delicate Hymenophyllums are plentiful there in districts suited to their growth. The grand Osmunda regalis, and Athyrium Filix femina, which take the rank of King and Queen of the tribe, are most abundant about the bogs and moist mountain dells; and the rare and curious Ceterach officinarum has a home in many a secluded spot, and about the Shannon, and especially in Ballymahon thrives in unwonted luxuriance.

And not only is Ireland famous for its Ferns, but also for Fern growers. Cork, Belfast, and Dublin have long been noted for excellent private collections, and to mention Dr. Allman, Mr. Andrews, or Mr. Moore, would be to open the way for a list of names that would occupy many pages of this work.

But the most agreeable fact connected with the formation of this society, is that the designation chosen for it, is a public tribute to one who has done much for Ferns, and more for Fern growers, for it would be no light task, although a pleasant one, to enumerate the services rendered to the inhabitants of our towns by Mr. Ward, in the invention of the Fern cases which bear his name. There is every reason, therefore, why "The Belfast Wardian Society" should have the assistance of every cultivator of Ferns and Lycopods, as well as of every student of the varied and graceful forms of cryptogamous vegetation, which to the botanist, the geologist, the artist, and every lover of the beautiful offer so many claims for special attention.

Our readers will doubtless learn with a satisfaction akin to that which we feel in communicating the fact, that the Society has already formed, from the donation of members and friends, the nucleus of a collection, and that greenhouse accommodation has been given it in Belfast. It is intended to collect "all the Ferns and Lycopodiums" cultivated in the United Kingdom, and to add to the living representatives of the family, an Herbarium and a Museum for fossils, so that the student of the coal formation, and the investigator of the laws which have governed the construction of the crust of the earth, may enjey every facility to compare the Filices that flourished in the era of the carboniferous limestone with the living representatives of the race that now revel in the splash of the cataract, or fringe with emerald beauty, the cavernous recesses of the wildest scenes of nature. The prospectus, which has been kindly forwarded to us, says, "This being the first Society established in the United Kingdom for the sole cultivation of Ferns and Lycopodiums, it confidently appeals for donations of Plants, Fronds, and Seeds, from all who have to spare, and take an interest in the Society. Any donations will be received for the Society by Messrs. George Phillips and Son, booksellers, Bridge-street, Belfast, and any information given on application to the Secretary, Mr. W. H. Phillips, 32, Brougham-street, Belfast."

That the Society will have the support, moral and pecuniary, of the majority of Fern cultivators in the three Kingdoms may be safely predicted. Such a society was wanted; for, as remarked in the article from which we quoted at starting, "there is no department of domestic plant-culture more in need of elucidation than that of Fern growing, and the use of Wardian cases, for the Filices are daily becoming more popular; every lover of plants gives some attention to them, they figure largely at flower shows, both as objects of competition, and as means of decorating the tables, and the day may not be far distant"—the day has arrived. Lovers of Ferns, place the Belfast Wardian Society firmly on its feet, and then see about imitating here the example set you in the sister island.

The Crystal Palace is now all ablaze with colour and redolent of perfume. From the corridor to the tropical end of the nave, vegetation shows not merely the fresh hues and delicate beauties of spring, but in the forwardness of many of the grand flowering trees and shrubs, it is almost summer there. The acacias are tricked out in their delicate buttons of cream, yellow, and white, the orange trees have here and there a ripe orange of last year left on them, and their foliage glistens with health and vigour. The basins about the fountains brim over with hyacinths, cinerarias, cytisuses, azaleas, and primulas, and as for the rhododendrons and camellias, the whole nave glows with them like a Cape bush country, and the spectacle is really gorgeus. On the 15th we

visited the Floral Bazaar, which was held in the central transept, and the show of flowers had a most charming effect. Strictly it was not a flower show, and hence there were not many novelties, and but few specimen plants, but the ordinary nursery stock of geraniums, roses, heaths, camellias, and cytisuses, backed by a fine collection of camellias and rhododendrons, supplied by the Company to complete the scene, compelled visitors to congregate and admire. The best effect was produced by Messrs. F. T. and A. Smith, of Dulwich, who had lots of geraniums arranged so as to produce a sheet of dazzling crimson the whole length of their stand; among them were many Gauntlets, Crimson Kings, two of the best of the new forcing geraniums, together with many of the new French spotted race, most beautifully grown, and loaded with blooms on short joints. Mr. Ponsford, of Brixton, had some beautifully grown specimens of Wellingtonea gigantea, and well forced roses; and Mr. Wood, of Norwood, a pretty collection of alpines; and there was another good collection of rock plants, from Mr. Atwood, amongst them the lovely Hedera arborea var. Vesta. Mr. Woodroof, of Harrow, had a famous lot of well forced furnishing plants; among them a number of Miss Trotman Verbena, Marshall Pelissier Geranium, a strong grower in the way of Commander. Among the other contributors we noticed good stock from Mr. Hally, of Blackheath, Mr. Christmas, of Camberwell, and Messrs. Hay and Sangster, of Newington Butts. Mr. Pfersdorff, of Kensal-green, had a unique collection of succulents, many of them ridiculously curious as examples of the vagaries of nature in the vegetable kingdom. The most important to botanical visitors, was the collection of seedling azaleas, rhododendrons, palms, and Chinese shrubs, exhibited by Mr. Standish, of Bagshot, the well-known grower of rare hard-wooded plants; these were indeed superb and novel. The collection included several of the new thuias, berberies, the noble Desfontania, and some showy camellias, and American plants, and though least attractive to the many of the whole Bazaar, did Mr. Standish credit. The pair of Chamærops humilis, shown by Mr. Standish, would have made splendid specimens for a conservatory, and Skimmia japonica in fruit and flower, showed the high capabilities of that noble shrub.

The Edinburgh Exhibition of Hyacinths, which took place at the Music Hall on the 23rd of March, was successful beyond precedent, and the Scotch gardeners maintained their well-earned position as masters of this favourite flower. There were more than five hundred hyacinths entered for competition, and the first prize was borne off by Mr. H. T. H. Douglas, Rosebank, Edinburgh; the second prize being awarded to the first representative of the hyacinth in the south, Mr. Cutbush, of Highgate. Mr. Douglas's plants were, perhaps, the finest lot of hyacinths ever exhibited, and we may now safely say that Britain can beat Holland, whence we had our first lessons in hyacinth growing, for several Dutch competitors entered the lists with the choicest of Holland-grown specimens, but the honours were divided between England and Scotland. Besides the hyacinths, there was a good show of rhododendrons, azaleas, Cape heaths, and hardy border bulbs. The first prize for rhododendrons was given to Mr. Methven, of Stanwell Nursery, and the second prize to Messrs. Cunningham and Fraser, of Comley Bank, but the judges were puzzled, and placed Messrs. Cunningham second only on account of a slight error in the arrangement of the plants as to proportions of colour. Messrs. Cunningham took the first prize for the best twelve hardy bulbs in pots; they consisted of narcissi, bulbocodium, scilla, crocus, leucojium, and cyclamen, in varieties.

The northern capital is to have a new association for the encouragement of horticulture, intended to supplement the declining Caledonian Society. It is to be called the Horticultural Society of Edinburgh, and is to have four classes of subscribers annually—21s., 10s. 6d., 7s. 6d., and 2s. 6d.; the lowest rate being intended to place the advantages of the society within reach of cottagers, artizans, and garden assistants. The Earl of Rosslyn has accepted the office of president, and Dr. G. Lawson, that of secretary.

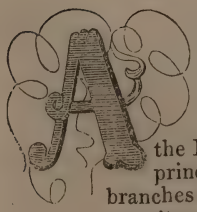
The spring meeting of the Horticultural Society was the occasion of a fashionable gathering of both visitors and gardeners in the New St. James's Hall, on the 21st and 22nd ult. The profusion of novelties was almost bewildering, and the whole scene cheerful, imposing, and complete. The lighting up of the Hall at night, produced a really grand effect, and afforded to many who could not attend during the day, an opportunity of viewing one of the most magnificent floral displays ever accomplished. Her Majesty and the Prince Consort visited the show in the morning, before the admission of the public; and during the two days, the visitors numbered nearly 5,000. Though so late in the season, there was an abundance of spring flowers, Hyacinths, Tulips, and Narcissi; Azaleas, Camellias, Rhododendrons, Roses, and Pelargoniums, almost beyond number; and among the collections of orchids, were many novelties. Messrs. Vietch filled one side of the Hall with foliage plants and orchids. Mr. Glendinning showed some pretty Chinese Peaches; Mr. Turner, Auriculas and Cinerarias; and Messrs. E. G. Henderson a fine assortment of variegated plants.

The Royal Botanic Society's first exhibition will take place at the Regents-park Gardens on the 12th of this month; the second and third exhibitions on June 2nd and 23rd. The first grand horticultural exhibition at the Crystal Palace is to take place on Saturday, May 22nd, instead of Wednesday, the 19th, as formerly announced.

On the 15th, an exhibition of flowers and fruit will be held in the gardens of the Manchester Botanical and Horticultural Society; and the Manchester Horticultural Exhibition will hold its first show at the Free Trade Hall, on Tuesday and Wednesday, May the 18th and 19th. The latter is expected to be one of the best exhibitions of the season, so Manchester will not lack May meetings for the devotees of the goddess Flora. Leicester is to be gay with flowers on the 26th, when the Floral Society will hold its first exhibition.

We have received the schedule of the Maidstone Horticultural Society, which will hold two shows this season; the first on the 24th of June, the second on the 15th of September. The list of officers includes the Earl of Romney, as president, the Countess of Abergavenny as patroness, and thirty-four of the nobility and gentry as vice-presidents; the Earl of Darnley, Viscount Falmouth, the Dean of Rochester, and the Mayor of Maidstone, being amongst the number. The committee and secretaries of this well-managed society have prepared an admirable set of regulations and bye-laws, and the prize list shows a determination to encourage earnest competition, and to do justice to exhibitors. We wish the "men of Kent" a glorious reunion.

BEGIN AT THE BEGINNING.



HEARTY welcome to the FLORAL WORLD! May its patrons and readers be as anxious in promoting its prosperity as its pages will be teeming with interesting and instructive matter.

From the contents of the numbers published, I conclude the FLORAL WORLD will be conducted on that much required principle of simplicity, that while it treats of the highest branches of Botanical science, it will not soar above the lowest capacity, and yet be interesting and instructive to the master of the art of Horticulture. The want of some such work has long been felt; but I trust that as long as the FLORAL WORLD lives, that that want will cease to be.

The love for gardening has now become almost universal; and the time employed by the amateur, in bringing his flowers and vegetables to perfection, gives him as much pleasure, as the blooming of the lovely things do after-

wards. To this end, it should be the aim of every one who writes to instruct on gardening matters, to teach him who has but little time to spare on his garden or greenhouse, to spend that time to the best advantage, so that the fruit of his labour will realize his expectations.

Many writers on gardening commence their dissertation with the supposition that their readers already know something about the subjects on which they are writing, and thereby, leave untouched many things that would be of infinite service to the generality of their readers. Many people have gardens this year, who never had any before, and having sufficient time as well as inclination to turn gardeners themselves, but the work being new to them, they require the fullest instruction to proceed to the best advantage. Every one must have a beginning, and for such beginners I would have their instructors begin at the beginning of every subject on which they dilate; and thus lead their pupils on by slow but sure degrees.

Those who are acquainted with the whole routine of garden and conservatory work, may smile at my remarks, without thinking that there was a period, in Sir Isaac Newton's life, when he was ignorant of the alphabet, and a time when they themselves could not tell a thistle from a teazle.

The following account, of building a greenhouse, may be interesting and instructive as well as bearing me out in what I have advanced:—

A friend of mine, who is extremely fond of flowers, but knows little or nothing about their cultivation, took it into his head to build a greenhouse; but he was as ignorant of the construction of such a place himself, as he was of its capabilities when finished. However, a greenhouse he was determined to have, and straightway sent for a mason, who was reckoned a good hand at such work, to have his advice upon the subject. "Capital place for a house, sir; things would grow here beautifully. But what sort of a house do you mean to have? Of course you'll have a forcing-house attached to the greenhouse, with a parting between; and the heat from the flue, which will run along the front of the greenhouse, will be sufficient to keep that warm enough during severe weather," began and ended the man of mortar.

"What do you think that such a house as you speak of would cost?" enquired my friend.

"About ten pounds," answered the mason.

Well, the house was built, but it cost my friend more than double the price named by the mason, and a vast deal of anxiety and annoyance. The mason absented himself several intermediate days during the completion of his work. The carpenter, too, was equally lax, and it was not until he was threatened with having his work finished by another that he could be induced to complete his share of the performance. Next came the painter and glazier, (both in one) and he was no better than the other two. It is true, his visits were many but very "far between," the longest of them being of short duration. However, the house, after being in hand for about three months was covered in at last; and, to give it in my friends own words, "I never was so sick of a job before in all my life. To think," he continued, "that when you want the simplest job done, you must beg and pray, and find a certain amount of judgment, too, is both tiresome and disgusting; and worse than all is, after paying to the fullest extent for everything done, that my house is thoroughly imperfect, and not worth anything like cost price For instance, as soon as the tank was ready to receive water, I put some in, covered it over, and made my cucumber bed. The 4th of September I put three pips into a pot, and soon had them up, and in course of a few weeks, I plunged them into their allotted bed; but they had not been there more than a fortnight when the tank began leaking like fury. There was no alternative but to take away my plants, remove the whole bed, and have the tank fresh cemented. This occupied some time, and was sadly annoying. However, I had it re-cemented, by a fresh hand, who complained sadly of the other's workmanship, which he set about

altering and improving, but, I am sorry to say, made it very little better; for it leaks now, much faster than I wish. But that is not all; the furnace don't draw properly; more heat and smoke rush out of the furnace-door than along the flue. The mason came to see it, after the seventh time of asking, but cannot alter his own bad work. I am out of heart with it altogether, for it takes nearly all the day to get anything like a heat there, and the smoke rushes out between the bricks of the flue both in the forcing and the greenhouse, which has killed several of my best and most favourite plants. Would you believe it, the smoke rises to within two feet or so of the top of the chimney, and there remains in a dark thick mass, as obstinate as a pig. It is a bad job, and I don't know how to make it better," concluded my friend, looking at me like "patience on a monument smiling at grief."

Of course I could not but sympathise with him on his misfortune, for a misfortune it really is; and if any of the numerous readers of the Floral World can help him out of his difficulty, I am sure he would receive it as a great boon.

However, after hearing his tale, I could not help telling him, that, when he was about having his house built, he should have begun at the beginning. "In the first place, you should have managed to have seen some one else's house, which would give you an idea how to build your own. Then, having fixed upon the sort of house you'd like, you should have had an estimate from two or more competent persons to build your house by such a time, for so much money. Then you would have known the exact cost of your house before the foundation-stone was laid. And it would be the builder's place, nay, he would be bound to finish his work in a proper manner before you paid your money." This same hint may be of service to others, whether they are about building greenhouses for their pets, or dwelling-houses for themselves. Their first step should be to "begin at the beginning."

M. W.

THE GREAT NATIONAL ROSE SHOW, 1858.

Does any rose grower now remember the year 1820, or the time preceding it? Can any one call to mind our gardens before the angel of improvement overshadowed them with his transparent wings; when roses bloomed for a fortnight or so and vanished; when Spong's was the favourite for forcing, De Meaux and the Moss for ladies' bouquets, the Tuscany for the border, Maiden's Blush and the Cabbage for a cottage garden, and when the ragged Four Seasons was sold for half a guinea? Can he call to mind how the China rose remained unalterable on the trellis of the wayside villa, Semperflorens was nursed in a greenhouse, and Lawrenceana was the petted of all lovers of the tiny? In those days, already fading away in the midst of antiquity, standard roses were unbegotten, pot roses were by practical men thought impossible, and as for a rose house, we should as soon have thought of building a conservatory for oaks and fir trees. And yet how dearly was the rose loved even then; hundreds of briars were collected, catalogued, and even painted; a new French rose, a Carmine brillante, or a Couleur de feu was a world's wonder, and every body went to "Lee & Kennedy's" to see it. What should we say were our gardens to be suddenly restored to the dominion of Rosa damascena, gallica, and centifolia? Happily that triumvirate of Queens is dead, and such as remain have dropped to the veriest plebeian rank; handsome, no doubt, but of the peasant class.

As far as we remember, the little Scotch rose was first taken under the patronage of improvers, and the old catalogues (that is of 1820-5), contained the names of many a now forgotten fair one. They were pretty things, no doubt, but their beauty quickly faded; we could not afford to cherish favourites whose charms vanished as quickly as revealed; and so Scotch lassies were set aside. Then came the first attempts at crossing with the ever-blooming Chinese; the result was instantly successful; breeders saw they had struck a rich vein, floral nuggets rapidly turned up, and from that time forward the field of roses has become a field of cloth of gold.

Three things only were wanting to excite competition and stimulate ingenuity. Fame, glory, profit remained to be achieved.

Exhibition came into the world; weak at first like all young things; but growing fast and waxing strong he soon arose a floral Colossus. One foot rested in London, the other in France; his limbs were encircled with roses; crowds of all nations came to wonder and admire; and the hopes of the rose-breeder were fulfilled a hundred-fold. Forthwith roses became a rage; intermarriages took place in every direction; even the remaining charms of the old ones were not overlooked. Every rose was wedded to every other in all conceivable ways. No degree of kindred, no incompatibility of temperament, no prejudices of caste were allowed to stand in the way. English allied themselves with Chinese, Austrians, Red Indians, or anybody; the native of Damascus found a mate in Paris; Barbary offered himself to a rose of Provence and was accepted; Switzer joined hands with Milanese, and even Spanish hatred of France melted away in the presence of a rose. From these intermarriages children sprang up in swarms; sickly and robust, handsome and ugly, tender and hardy, long-limbed and sturdy, red, white, crimson, pallid, yellow, striped and plain; some with breath fragrant as the breeze from a spice island; others, like some human beauties, most charming at a distance,

Exhibition took them all in hand; each was in turn exposed to public scrutiny; the admired were preserved to become mothers of a finer race, the ugly, the puny, the worthless perished in his gripe. The giant is 30 years old or thereabouts; each year he waxes stronger, but, as is the way with other destroyers of life, he becomes more ruthless the more victims he immolates.

This year he is for the first time to hold a special court of roses somewhere in London, and woe to those whose bantlings are too weak to gain his favour. Present themselves they must; not to appear for judgment will be to confess worthlessness; to appear and be condemned will be a better fate. They will find in the presence all the dignitaries and celebrities of their nation; all who have achieved honour, and won renown; all aspirants to glory; the decorated and the undecorated. Of the first it is probable that some are showing symptoms of decay; for old age tells on roses as on men; of the second many are full of youth and vigour, and may well hope to gain a step or two. To be smiled on by Exhibition will at least assure them of the admiration of the crowd. Let them come then and be judged, or for ever hide their dishonoured heads.—*Gardener's Chronicle.*

SUBURBAN GARDENS.—CUERO GUANO.

THERE are, in the vicinity of London, as well as in that of most of our large provincial towns, along the main roads and their collateral branches, an immense number of houses, detached, semi-detached, or even when they form places and terraces, each one of which has its own particular slip of ground attached, which courtesy, as well as the high-flown language of auctioneers and house-agents, describes as a large and productive garden. In a very great majority of these, their respective occupants spend a great deal of their leisure time, and not unfrequently a great deal of their spare cash in the shape of wages to journeymen gardeners, and florists, and seedsmen, in the attempt to obtain some sort of produce, either ornamental or useful. Not unfrequently, however, time and money are both thrown away; the aspect, often of the most unfavourable character, and the nature of the soil, baffle their attempts, and even when the first is propitious, the way in which many of the houses are built renders it a difficult, if not nearly an impossible undertaking, to remedy the second by the application of manure. Some of the houses, indeed, have the means of introducing a wheelbarrow, or it may be a larger vehicle, by a gate, large or small, according to circumstances, at the end of the garden, or the side of the house; but, in many instances, the only access to the garden is through the house, not unfrequently through one of the sitting rooms, by a French window. In such cases, the introduction of so bulky an article as stable manure, as well as its unsavoury and uncleanly nature, is a serious business. It must be procured elsewhere, often from a distance, for in few of the class of houses to which we refer do the circumstances of the occupants admit of the home production of such a commodity; people who keep horses, &c., usually occupy larger residences. In the next place, the stable dung having been procured, must be deposited either in the road, or in the front court or garden; then it must be conveyed by wheelbarrow to its destination, making a great litter on the walks, even if done as neatly and carefully as possible, while the house and neighbourhood is perfumed with the smell, not the most agreeable one, even if the dung be comparatively new, and if it chance to be

rather more than half decayed and mixed with other ingredients, the smell is most insufferable. When to these disagreeables is added the trifling fact that the only access to the garden is through the house, it will be easy to imagine, that rather than go through the process, all idea of renovating the powers of the soil by manure is abandoned in despair.

The more resolute among the suburban amateur gardeners, who find themselves thus situated, but determined not to give up altogether the cultivation of their floral pets, make small collections of manure, composed of decayed leaves, lawn mowings, weeds, &c., in some obscure corner; the knowing ones among them taking care to have added to the stock, occasionally, the refuse of the house and kitchen, which otherwise finds its way into the drain or the dust-hole, and this they reserve for the benefit of some few special favourites, or for a few feet of the sunniest border; beyond this the garden receives no manure at all, and its productive powers are soon almost exhausted, and it lies neglected, useless, and, it is needless to add, far from ornamental.

Much improvement has of late years been effected by artificial manures, especially Peruvian guano, but with this last article, its unpleasant smell, and the fact that it destroys the seed with which it comes in contact previous to its germination, and the amount of care required in its application to growing plants, altogether render it unmanageable and unsafe in the hands of the amateur, while its high price, not less than 15*l.* 15s. per ton, and the difficulty of obtaining it retail, put it out of the reach of most people. There are several other compositions in the market, the virtues of which are highly lauded by the inventors aad vendors, some of them selling as high as one shilling per pound. Those who use them will, perhaps, be startled on learning that they are paying about seven times the price of Peruvian guano for a very inferior article—something about 112*l.* per ton is a long price for manure—and of this, in point of practice, the sellers of these boasted compositions seem to be aware, as they recommend purchasers to administer them in homœpathic doses; for instance, a teaspoonful once a month to a large flowerpot, or in a gallon of water;—the use of them in the natural ground does not seem to be, by any possibility, contemplated.

The writer of this had his attention drawn last year to an entirely new article in the manure line, a small quantity of which, perhaps half a pound, was given to him as a specimen. The inventor of it has given it the name of Cuero Guano, from a Spanish word denoting its chief ingredient, the term guano being already adopted from that language to denote manure. Its nomenclature, however, was a matter of indifference to the writer, who cared only for its effects upon a few pet plants, which he then tended with some anxiety upon a rather smoke-befouled lead flat, at the back of a London street. Owners of gardens will smile at the catalogue of his plants, but here he applied it to a Ribes speciosa, or flowering currant, a few fuchsias, mignionette, sweet peas, and last, but not least in his estimation, about half a dozen seedling orange trees. There was also a decrepid moss-rose tree, whose life he despaired of. The effect surpassed his utmost expectations; the fuchsias, which for two years previous had scarcely produced any flowers at all, and those of very diminutive size, now put out large fleshy flowers in abundance, with a strong dark healthy foliage; old mignionette seed grew as well as new, nay, even better than new seed sown without the Cuero Guano; sweet peas grew and flourished luxuriantly; the seedling orange trees, only sown in February, became, in the course of the summer, little shrubs a foot high, and the decrepid moss-rose tree sent up from the root a young shoot full a yard in length. It was too late in the season for any effect as to blossom to be perceived on the ribes, but an abundant foliage gave a promise of a fine show of flowers during this present spring.

This new manure has been strongly recommended to the attention of farmers and agriculturists, and has received great praise from Professor Way, who has analysed it, but with its merits in this respect the writer has little to do. His object is to invite a trial of it by those who, like himself, are possessed of small gardens, and situated where stable dung is either not very readily to be procured, or not easily applied when obtained; to persons so circumstanced, he conceives he will be doing a kindness by imparting to them the knowledge, accidentally obtained by himself, of an article which contains so many good qualities in so small a compass. Its low price, scarcely half that of Peruvian guano, its entire freedom from any unpleasant smell, and the perfect safety in the method of its application, added to the complete success which has hitherto accompanied it, will recommend it for use among all amateur florists, especially in the greenhouse and conservatory, where nothing unclean or offensive may intrude; indeed, such is its nature in these respects, that a lady may keep a bottle of it in her chiffonier or work-table drawer, and apply it to her floral pets, at her drawing-room window, without soiling her fingers or offending her sense of smell.

The writer is not aware of any place where it can be obtained retail in quantities less than 1 cwt., or that any agents have as yet been appointed for the sale of it; a mistake,

in his opinion, on the part of the patentees which, perhaps, will ere long be remedied; but it may be got at the manufactory, 68, Willow Walk, Bermondsey, in 112lb. bags, for 8s. 6d. per cwt., and these bags will be delivered at any London railway station free.

So convinced is the writer of its value as a manure, and so great is his faith in it, that, having left his smoky London abode, and being now possessed of a small garden, he has just ordered five hundredweight of it for his own use, being resolved to outshine all his neighbours at *Croydon, Surrey.*

PROFITABLE GARDENING.

CHAPTER IV.—DIGGING AND DRAINING (*continued*).

I HAVE yet a few words more to say about digging, and I the more readily expand this chapter because, on these preliminary operations, the future success of everything depends—good seed, good soil, and good manure may all be worthless if there be any compromise with the spade, for the soil has powers that we know nothing of till we try it fairly.

First of all, let me commend the steel-digging forks that are now getting into such general use. For all ordinary digging they are better than spades, because they break the soil well, pass through it easily, and enable a man to perfom one-third more work in a day than with a spade, but when the ground is wet, and is being ridged up for winter, a spade is best to throw the soil up in solid cakes, in which it gets better frozen, and can be ridged up higher, and rougher than when forked.

The next point to be noticed is, that all annual weeds, such as grass, groundsel, plantain, &c., should be turned over into the bottom of the trench, but all perennial weeds, such as couch-grass, bearbind, &c., should be picked out, and not a scrap of root allowed to escape, and every bit burned. Have a basket or barrow at hand as you dig, to receive such things, and if you come across any rubbish which a former tenant may have buried, remove every fragment of old iron, and all other metallic substances, for they poison the ground; but if brickbats and old mortar abound, mix all but the largest with the soil to enrich and sweeten it, removing only what really impedes the working of the spade; for a deep soil, moderately mingled with small building refuse, is kept open and more fertile than one which is made so fine as to run into a paste every time it rains. A sapient writer, in a popular cheap sheet on gardening, advises the grower of edibles to pass the whole soil of the garden through a sieve. *Sift the soil, indeed!* Why, it would run to mud after the first shower—a condition which the writer's brains must have been in when he made such a guess, after, perhaps, an experience of half an hour in potting a geranium. Besides, who could do it, unless he were sure of living to the age of Methuselah? and then he would want a permanent grant from the society of sieve makers, to keep the experiment going. Knock your soil about well, never tread on it, nor dig it when very wet, and in really stony ground don't even take the stones out, unless you can add fresh soil, for in hot weather you will find, moisture under a stone, when elsewhere the ground is parched into pie-crust; but in making seed-beds and other fine work, a deep friable soil, free from stones and rubbish, is desirable; and for all plants that have tap-roots, brickbats, large stones and other such matters, are objectionable as causing the roots to fork, and preventing them from penetrating deeply into the ground.

In digging land that is lower on one side than the other, it is easy

to bring it to a level by beginning at the lowest side first, and working forward, so as to make the trenches a little wider each time, and thus, as you come to the *highest* part, the earth will be thrown forward into the last trenches, and bring the whole to a level. Or, if the piece is large and the inequalities great, it will be better to dig the lowest parts first and wheel a few trenches from the highest parts to them, but a little practice with the spade enables one to manage these matters with very little extra labour, and generally without any wheeling at all.

In the autumn digging it is not well to add manure, except for such things as winter cabbage, which are to go on the ground soon after, or in preparing a deep soil for tap roots. In the latter case the manure should be buried at the bottom of the trench to induce the roots to push down after it; if mixed with the soil they throw out side roots, and get badly shaped, which much lessens their value. The general manuring should take place in the final one-spit digging in spring, when the ground is made up for planting. The usual way is to spread the manure on the surface, and turn it over with the weeds into the bottom of the trench, but it is preferable not to spread it at all, but to fork it into the trenches as they are opened in succession, then chop it up with the soil of the trench, and lastly, turn the next spit on to it. This saves trampling on a wet mass of dung, and the manure lays lighter and keeps the soil of the trench more free and open.

Mawe, in his good old book, says, you should never dig when snow is on the ground; now I like to dig the snow in, for it is very fertilizing. The objection to the practice is that buried ice and snow are a long while melting, and of course in preparing a warm quarter for something early, it would be wrong; but in the latitude of London, and as far as the midland counties, I should never expect the ground to be cooled for any length of time, and as far as my experience goes, I never knew any but a good result from turning the snow in, and treating it as a very excellent manure, for it is rich in ammonia, which is the most valuable of fertilising agents.

There are now two matters to dispose of, one of them all important, viz., drainage. In a badly drained soil deep digging gives great relief, because the surface readily parts with any excess of moisture by the absorbent power of the loosened subsoil. But in low positions on heavy loams and clays, additional means of drainage are generally necessary. If you see the common Horsetail, or *Equisetum*, growing plentifully in your garden, be sure you want a better drainage. If the autumn fog hangs about your ground when elsewhere it has cleared off, learn from it the lesson that your drainage is not what it ought to be; in fact, if the storm water does not pass away quickly, you will never realize all the benefit the ground is capable of effecting for you, and must make provision accordingly.

The most effectual mode of drainage is by a regular set of drain pipes or tiles, properly arranged to carry water to an outfall; but there are some simpler expedients that entail only a little labour, and no expense whatever. Any one can scheme a plan for arranging drain pipes if there is anything like a fall. Let them be placed so as to carry the water into the nearest ditch, or to the lowest part of the ground, and if there is no established receptacle for them, dig a hole expressly to receive it. The pipes should be of *an inch* diameter only, and then it will be impossible for moles to get into them. In laying them down, cut trenches from two to three feet deep in regular lines twenty-four feet apart, or in a clayey soil, let them be only twelve feet apart. Lay the pipes at the bottom of the trenches, puddle them over in the clay, and return the earth; and the drainage, even with so small a bore, will be very effectual. Some permanent mode of marking where they are should be used, that in future deep digging they may not be broken or disturbed, and to obviate this, it is often better to place them along borders and adjoining paths, where there is little chance of the ground ever being

dug so deep as they are. But without pipes very good drains may be made. Cut a number of trenches three or four feet deep, arranging them to fall into the natural outlet, or turning them all to the lowest part of the ground. If there is no ditch or other way of getting rid of the water, you may either dig a hole and form a tank of puddled clay to receive it, or trust to the absorbent power of the lower stratum. Cut the trenches three feet deep and three feet wide at the top, sloping on each side toward the bottom, so that a section of the cutting will represent a wedge; then throw in one foot or eighteen inches of broken glass, broken tiles, and any kind of loose hard rubbish. Over this lay a foot of woody cuttings from a thorn hedge, and return the earth. This is what is called a bush drain; if it has a fall into a tank or ditch it is very effectual, but without any such outlet it is still very serviceable by quickly drawing off the surface-water, and ridding the ground of one of its worst enemies.

The last suggestion to be offered in this chapter is one bearing on the question so much agitated of late, how to expose the greatest superficial breadth of soil to the atmosphere. A wag, debating this question said, it might be settled by putting the ground on edge, and planting both sides of it; but you may be content with an experiment of a less ambitious nature. There is a mode of arranging the working ground of a kitchen garden, which has many advantages as to the culture of crops, and at the same time increases the actual amount of surface for operations, and it is the disposal of the surface into a regular series of banks. These banks should run east and west, so that one side of each forms a slope to the north, and the other to the south. In good soils these banks may be twelve feet wide, and about five or six feet high, but on thin soils six feet wide at the base would do. By placing a cut board, or a row of dwarf peas on the top of each ridge, the south side will be rendered still warmer, and on these south sides crops of strawberries, French beans, potatoes, horn carrots, salads, &c., may be had a fortnight earlier than in the open ground, and the north sides will be equally useful for retarding things that are wanted to come in late, as well as for lettuces and other succulent things that are wanted in perfection in the driest and hottest months, and which are apt to "bolt" or lose their delicacy if too much exposed to the sun. Contrary to what might be expected, the watering-pot is seldom required to these banks, though on one side they are so much exposed to the sun. The great depth of soil encourages deep rooting, and hence the stocks hold well against drought. All ordinary seed beds should be four feet wide, with two feet alleys between for convenience of hoeing and dressing the crop. The length of a bed is of no consequence whatever.

DIRECTIONS FOR OBTAINING THE SKELETONS OF LEAVES.

Choose the most perfect leaves, and put them into a large deep jowl or milk-pail of rain-water. Place the vessel in a sunny spot, exposed to the air, and *shake* it now and then, but by no means *stir up* the contents, for that would injure the fibres of the leaves.

When the water dries away, fill up the vessel again without changing the remaining water. The leaves must remain in water until the outer skin is loosened from the fibre, then they may be taken out, and gently rubbed between the fingers and thumb; and in some cases, a piece of soft flannel may be used for the purpose. In some leaves, as the ivy and holly, the outer skin will come off whole, or nearly so; but in others, like the Magnolia, it will require rubbing four or five times, with intervals of several weeks.

When the skeleton is perfect, it may be bleached with a little chloride of lime, well diluted with spring water. Sometimes, a few minutes will suffice; but leaves of strong fibre often require some hours to whiten.

July and August are the best months for making choice of leaves. If, when held up to the light, any small spots of decay or crack be observed, it will not be a good leaf to choose.

The time required for steeping depends on the season. Close, hot, thundery weather, does the work most quickly.

The following list of plants will be found to succeed without much difficulty :—

Leaves.

Pear, Apple, Poplar, about 3 or 4 weeks.
Kidney bean ... „ —— „
Tulip tree ... „ 5 or 6 „
Ivy and holly ... „ 3 or 4 months.
Magnolia ... „ ——
Sycamore ... doubtful time.

Flowers.

Hydrangea ... about 6 or 7 weeks.
(These must be fingered under water.)

Stramonium Seed-vessel 3 to 5 weeks.
Calyx of the Atropa Physaloides ... ... 6 to 8 „
Winter Cherry... ... ——

The leaf of any tree that contains caoutchouc is *likely* to succeed. The Indian rubber leaf may often be found among the refuse of a greenhouse in perfection, only requiring to be bleached.

N.B.—The vessel of water may be pretty well filled with specimens. They will not injure one another if not too rudely shaken and stirred, and the larva of the gnat breeds in great numbers, and assists in the process, while it is quite harmless to us.

S. C. S. F. D.

EUPHORBIA FULGENS.

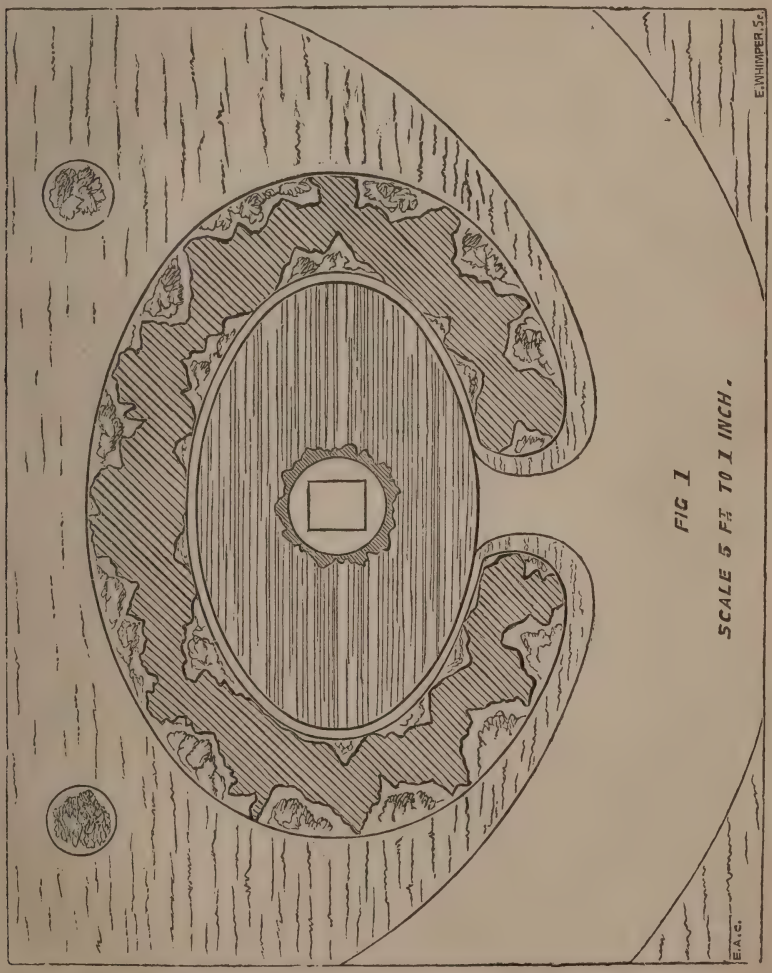
This charming inhabitant of our stoves is a member of the showy family of milkworts, or spurges, of which there are many greenhouse-herbaceous, perrennial, and annual species, but the stove evergreen kinds are those most prized. It is now a well-known plant, having been introduced so long ago as 1836, from Mexico. It does well in a dry stove, in light loam, with a little peat, with plenty of old charcoal and potsherds for drainage. When struck from cuttings, they should be dried at the base, on account of their propensity to bleed, and this renders it a difficult operation to strike them. It is a good plan to partly sever them a week or two before finally cutting them off. It bears heat well, and likes abundance of light during summer, but the winter temperature should average not higher than 50° or below 45°. *Lathyrus* is the caper spurge, a handsome British species, which should be in every collection of wild plants. But its name should not lead any one to use it as a substitute for capers, for it is poisonous. Among the hardy annuals, *Phimosa* is the only one worth a place in a garden. The following stove species are extremely beautiful, and well adapted for forcing. *Fulgens* is a free and profuse bloomer, producing its umbels of blazing red flowers in August.

Punicea is a valuable species, on account of the dazzling crimson colour of its fruits; it does best in rich, strong loam.

Splendens is another very showy species, and *Caput Medusæ* should be grown by those who like curious forms.

SUBURBAN GARDENING—ROCKERY CONSTRUCTION.

Many good suburban houses possess only a small yard at the back. It is my object, in the present paper, to show how a portion of such space may be converted into a continual subject of interest, and that at a comparatively trifling outlay; premising that the rockery description is taken from an actual construction, executed twelve months ago.



We will suppose a piece of ground, 25 feet by 20 feet, to be at your disposal. Mark out the inner oval (fig. 1), and excavate three spades deep, leaving the sides sloping; then well ram all over, till the surface is firm and compact. A square pedestal of brickwork in cement is now built up in the centre to form a support for a vase of iron, terra cotta, or Ransome's artificial stone; the water-pipe, for supplying a fountain jet, is embedded in the work, as is also a leaden service, for a range of minor jets, afterwards referred to.

Fig. 2 shows the arrangement of all the piping.

S.—General supply of iron, three quarters of an inch bore, furnishing water to centre vase jet, and connected at t with

S, s, s, s, s.—Secondary fountains, issuing

from an oval ring of half inch iron pipe, and playing into the tazza. They are regulated by tap (t).

M, m, m, m, m, m, m, m, are minor jets, receiving overplus water from the vase, through half inch leaden tubing, and discharging into the lower pool.

Smith's work being completed, the sides and bottom of the excavation are lined with flat tiles in Portland cement, and the whole surface rendered with an even coating. That portion of the brickwork pedestal above the level of the tile-work must also be plastered with the same material. The cement is then suffered a few days to harden, in which,—by way of taking time by the forelock, — you had better have carted to your yard three one-horse loads of vitrified clinkers, commonly called "run bricks," or "burrs." They will cost about five shillings per load, including cartage.

The plaster work having set, a narrow rim of turf is laid round the extreme edge of the pool, thus concealing the secondary fountains' supply.

The nozzles, made of lead, beaten round iron wire, spring up amid the grass. In arranging the rockwork, commence and continue in horizontal layers; build up gradually, fortifying all weak points with a little guaged cement. The centre of the back, which is the highest point, should be about seven feet above ground. Allow plenty of space for good soil, between the outer and inner walls; and carry the erection into jagged peaks, with pinnacles, leaving miniature ravines, bays, and chinky hollows. Bear in mind that the height must continue to decrease as you approach the front, where the greatest allowable altitude will be about eight inches or a foot. Harts-tongue ferns (Scolopendrium vulgare) are planted on a small pile of clinkerwork fixed round the square pedestal. The inner nooks are devoted to filices. At the edge next the water, Lysimachia nummularia will flourish with luxuriance. The outer recesses are filled with dwarf roses, red geranium, yellow calceolaria, and annuals; fuchsias are all that can be desired for the flatter parts between the pinaclets. Gold and silver fish are placed in the basin, soon becoming tame enough to flock to the surface for food, on the approach of their owner; and sporting about among a few choice water plants, they impart an additional charm to the already varied scene.

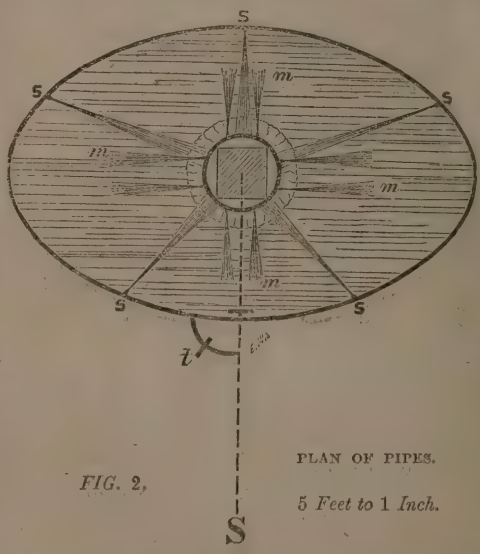


FIG. 2. PLAN OF PIPES. 5 *Feet to* 1 *Inch.*

The plants set out in this rockery will give some idea of the power of accommodation in a judiciously planned work. Their names are as follows:—Ajuga Genevensis; Ajuga reptans alba; Anemone, single and double; Antennaria lupina; Antirrhinum; Arabis precox; Arenaria cæspitosa; Asperula odorata; Aubretia purpurea; Caltha palustris; Campanula glomerata; Cerastium tomentosum; Cheiranthus Alpinus; Chelidonium majus; Convallaria majalis; Corydalis lutea; Cotyledon umbilicus; Crucianella conjesta; Daphne cneorum; Dianthus deltoides; Dielytra formosa; Erica herbacea; Eschscholtzia crocea; Filices (various); Geranium phæum flore-pleno; Geranium sanguineum; Helianthemum flore-pleno; Helianthemum venustum; Hepatica triloba; Hyacinthus non scriptus; Linaria cymbellaria; Lotus corniculatus flore pleno; Lysimachia nummularia; Myosotis alba; Myosotis cœrulea; Myosotis intermedia; Orobus hirsutus; Oxalis acetosella; Phlox subulata; Polemonium cœruleum; Polygala chamœbuxis; Potentilla anserina; Potentilla fragaria; Potentilla reptans; Potentilla tormentilla; Primula vulgaris; Ranunculus ficaria; Saponaria ocymoides; Saxifraga aizoon; Saxifraga granulata; Saxifraga granulata plena; Saxifraga pedatifida; Saxifraga umbrosa; Sedum acre; Sedum album; Sedum Anglicum; Sedum arachnoideum; Sedum dasyphyllum; Sedum dentatum album; Sedum dentatum rubrum; Sedum

luteum; Sedum populifolium; Sedum rupestre; Sedum Sieboldii; Sedum squalens; Sedum telephium; Sempervivum globosum; Silene alpestris; Tanacetum luteum; Tormentilla; Trandescantia virginica; Tussilago farfara variegata; Valeria montana; Veronica microphylla; Veronica saxatile; Vinca minor; Viola flore-pleno; Viola odorata; Viola tricolor.

Those of our readers who are unable to obtain water for a fountain display must adopt the substitution of a large pot of Pampas grass on the central base. In situations where the refreshing element is needed for gardening purposes, there will be no necessity for any overflow wastepipe; but, if desired, it could be connected with the house drain. In watching the progression of the above-named plants, the contemplative mind will find much to instruct and amuse. Of a truth, "The works of the Lord are great," both in the world of nature and the kingdom of Grace.

EDWARD A. COPLAND.

HYBRIDISING.

BY THOMAS LAXTON, F.H.S.

AMONG the many delights experienced by the gardener, the production of new varieties, is the most fascinating, and lastingly attractive, and where properly directed skill and perseverance are employed, the occupation will become not only highly interesting and a source of profit to the cultivator, but a benefit to all. However unimportant the subject may seem, society, in its present artistic existence, is under great obligations to the Hybridiser, and we must certainly not pass by his claims to be considered our benefactor; it is by his exertions, with Dame Nature's fostering aid, that many blessings have been provided, while many more yet undeveloped are to benefit the future inhabitants of our crowded cities. It is by the same exertions, that better and more wholesome fruits are daily impeding the course of disease, and tending to its alleviation when within our walls; and if we look still further, we find that by the same medium, we are supplied with an increased amount of improved sustenance, rendered necessary by the advance of civilization, and the multiplication of the human race. Having, myself experienced much enjoyment from hybridising during my leisure moments, I would urge upon all who seek amusement, to try what they can do towards improving and adding to the cultivated occupants of our fields and gardens by cross-breeding. Although much has been effected, there is still a wide field for operation, when we consider what yet remains to be done by crossing the hardy and indigenous products of our climate, with the more tender and often more beautiful and tempting varieties from the tropics; and I would ask all who are inclined to commence, not to be daunted by the want of immediate success, for, in this instance, it will be found that patience is the only sure road to accomplishment; nor to be discouraged by the oft repeated counsel of many gardening treatises to amateurs, that they have but little chance of improving upon the already very numerous category of hybrids and varieties. I say, do not let such advice deter you, for with *good materials*, moderate care, and some judgment, a pleasing, if not profitable, result will be obtained.

The principal aims of the Hybridiser and cross breeder, will be, with flowers, to increase their size, to improve their form, and to obtain a variety of colour and extension of the blooming period; with fruit, &c., to increase their bearing, quality, and size, to improve the flavour, to procure greater hardiness of constitution, to advance or retard the time of ripening fruit, and to extend its keeping period when gathered. In order that the amateur may have a fair chance of success in obtaining varieties improved in any of the foregoing qualities, it is advisable that both the male and female flowers should possess one or more of them in the standard of proportion, the plant to be operated upon, usually wanting the qualities abounding in the male, and the female having sufficient of those wanting in the male.

The terms, "Hybridising" and "cross

breeding," are often used synonymously, but strictly, a *hybrid* is a cross between two different species, whose progeny is never fertile of itself, but may be rendered so by impregnation with one of the parental species. The offspring of two different varieties is mostly fertile, and is called a *cross*. If it be desired to raise a hybrid, the species must be nearly allied, or the result will be futile. If a new variety of the same species be required, it will be well to select the female or flower to be impregnated, and the male or flower from which the pollen is to be taken, from different plants. The female should be of good habit, or of the growth required for the seedling, as it is found that this qualification, as well as form of flower and shape of petal, are imparted to the progeny more by the influence of the female than the male; on the other hand, the colour of the flower is affected more by the male than the female parent. Care should be taken in raising new varieties of flowers, to employ only well formed blooms, and that the colours of the petals of each should have some affinity, for if they are much contrasted, it may be expected that the seedling will be worthless, and of irregular and intermingled colour.

The opportunity to be seized, is when the flower to be crossed is fully expanded, and its stigma presents a glaucous and viscid appearance. About noon, or earlier, will be found the most suitable time, and the operation should only be carried out (in the open air) on a dry and calm day. The male flower should be slightly in advance of the female, and as soon as the anthers exhibit a dusty and farinaceous aspect, the pollen is ripe, and the flower should be gathered and placed with stem in water, away from the influence of the weather, until the crisis for application to the female arrives; the pollen may even be removed and wrapped in paper, in which state it will keep for several months if damp be avoided. It is alleged that the offspring generally bears more resemblance to the male than the female parent; and if it be desired to produce still greater assimilation to the male, this can be effected by removing the anthers of the female, before the pollen becomes mature, for which purpose the Hybridiser should be provided with a pair of fine-pointed scissors.

The Pollen may be applied to the stigma of the seed-bearing flower, either by means of a small camel-hair pencil, or by bringing in contact with the stigma the flower containing the pollen; caution must be observed in operating, as an injury to the stigma will be fatal to the success of the operation.

If the pollen adhere, the general conclusion is that impregnation will take place; if it do not attach itself the seed-producing flower is not sufficiently mature, and the experiment must be deferred until the stigma becomes viscous. It will not, however, be necessary to apply the pollen immediately such is the case, for if impregnation do not take place, the stigma will remain vigorous for a considerable time. After hybridising, it will be necessary to protect the blossom from the wind, which is frequently the means of conveying pollen from one flower to another, and from wet, either of which, on coming in contact with the pollen, would entirely frustrate the wishes of the experimentalist. The access of insects must also be guarded against, both before and after artificial fertilisation, by encasing the flower lightly in a net or gauze bag.

Having given my Amateur friends a few general remarks upon what was formerly considered a "black art," I propose, Mr. Editor, to follow them up in succeeding numbers of the FLORAL WORLD, with details for carrying out the art in the raising of new varieties of particular Florists' Flowers. My attention is due in the first instance to the neglected Royalty of the Rose, whose claims to precedence, as the Queen of Flowers, and as our national emblem, have not met the response they deserve in the clime of her nativity.

Stamford, March, 1858.

MAY WORK IN THE GARDEN AND GREENHOUSE.

Though the first of May generally proves a burlesque on the glowing character given it by the old poets, the general appearance of gardens, meadows, and woods, is such as to assure us that summer is not far off. Those who allege that our climate has changed for the worst since ancient times, should bear in mind, that the difference between *old* and *new* style is sufficient, at this time of the year, to divide the last traces of winter from the first blush of actual summer; for, in *reckoning*, we are twelve days in advance of our ancestors, and hence the discrepancy between the descriptions of the seasons by Chaucer and Spenser, and the seasons as observed by ourselves in connection with the modern Calendar. Bleak as May may prove at first, the month will not have advanced far before the entire gardening world will be busy bedding out the stock that has been preparing in pits and houses for some months past. To avoid mistakes and mishaps, the spaces intended for bedding plants should be measured off in time, and the colours carefully arranged, so that, when the season is sufficiently advanced, the stock may be ready, well hardened to bear exposure, and in sufficient quantities. Stock ordered from the nurseries should not as a rule be committed to the open ground immediately on its receipt, for, having come from close warm quarters where growth has been forced to meet the demand, the plants may suffer a chill, that will put them back considerably. A cold frame is a good place in which to harden stock, preparatory to bedding, and in filling the beds, warm, muggy, damp weather should be chosen, if possible, and the plants turned out quickly to their places, with the least possible damage to the balls.

Kitchen Garden.—Marrows, cucumbers, and melons may still be sown; the latter require the most heat, and cannot be well fruited unless they can enjoy a temperature of seventy to eighty degs., and five more degrees of bottom heat. Pumpkins and gourds of all kinds, as well as Stockwood, Southgate, and short prickly cucumbers, may be grown to great perfection in the open air, by starting the seeds in a gentle heat, and when the plants have formed their rough leaves turning them out on a bed of dung or loam well enriched, and giving them the protection of hand-glasses for the first fortnight. Those who have no hand-glasses, should protect them every night till June, by turning over each plant a flower-pot with the hole stopped. Ridge cucumbers bear well and give little trouble; the simplest way of growing them is to cut a trench three feet wide and two feet deep, and fill this with any littery rubbish in a fermenting state; long, half-fermented dung is, of course, the best. Soil it over nine inches deep with the stuff that was taken out, and then sow in patches of three seeds, eighteen inches apart. Pots or hand-glasses should be put over each patch of seed, till they come up, when they should have air by degrees, and protection against night frosts, and to be thinned to the strongest plant in each patch, as soon as they have made their rough leaves. Cucumbers and gourds should not be stopped, but allowed to ramble as they will, either on the ground or a rough trellis. They should have abundance of manure water in dry weather, and the fruit cut as fast as it is ready, as, if one is left to ripen, the vines cease to be prolific. Trenches should now be made for celery, and six inches of rotten dung forked into the bottom of each. A dull or showery day should be chosen to put out the plants, and plenty of water given during dry weather. Sow beet, marrow peas, broad beans, kidney beans, and runners; turnips, lettuce, turnip-radish, and other salads, as required for succession. For successional crops of spinach, the prickly sort will be found the best now, as less likely to run during hot, dry weather. Look to seed beds, and transplant; well hoe and clear the ground as may be necessary. The use of liquid manure and frequent stirring of the ground between growing crops will hasten and improve the growth of all things.

Flower Garden.—We would advise those who have not had much experience in bedding, to defer the putting out of their stock till towards the end of the month. There is nothing gained by the attempt to save a week, for we frequently have bitter nights, and north-east winds, even till the last week of May. The middle of the month is the earliest time at which we would put out bedding stock anywhere near London, or in the Midland Counties; farther north we would wait till another fifteen

days, but in the south they are always in advance of us Londoners. Successional sowings should be made of all hardy annuals that may be required to succeed those sown in March, and tender kinds, such as asters, zinneas, &c., may now be sown in the open ground. This is a good time to sow hardy and half-hardy perennials of all kinds, to get strong plants for winter, either to remain out, or have the protection of a frame, or to take up and pot for early blooming in the greenhouse. Lovers of the Chinese primula should sow now for the next spring. Late planted roses should have plenty of water, and the surface mulched, and similar treatment given to hollyhocks and chrysanthemums put out last month. Carnations and picotees should be staked without delay, and their shoots thinned. Part and plant polyanthuses and primroses that have done blooming, and give them a rich loam and a shady aspect. Where it is intended to have new gravel, it would be advisable to defer it till the beds are filled, and the whole garden acquiring its full summer gaiety, a coating of fresh gravel then will add much to its fresh and bright appearance.

Greenhouse.—Continue to strike bedding stock for late blooming. Fuchsias, geraniums, verbenas, and petunias make beautiful specimens for pot blooming in the autumn, if struck now and kept regularly stopped till July. They should not have a high temperature, fuchsias especially, which like shade and moisture. Cinerarias done blooming should be cut down and planted in rich soil, in a cold frame, to furnish offsets for potting. Camellias and azaleas that have made their young shoots should have a little more ventilation to prepare them to go in the open air next month to ripen their wood. All growing plants, and especially hard wooded ones, must be regularly stopped, and have plenty of air, to insure a sturdy short-jointed growth, and tiffany, or the canvas called "strainer," put up inside the house, where moderate shading may be necessary. Pelargoniums out of bloom to be cut in and allowed to break before repotting them, and the syringe and fumigator kept in use, as may be necessary, to destroy red spider and green-fly. Fire heat should be dispensed with as much as possible, preparatory to clearing and cleaning out the house.

Stove.—Pines must be shaded on bright days, and the soil about them kept regularly moist, and liquid manure used frequently. Suckers should be removed as soon as they make their appearance, except so far as they may be required for stock. Queens never produce good fruit unless the suckers are removed early. Young pines, for winter fruiting, should be in a rather light soil, to prevent excess of moisture from stagnating about them. Vines that have their roots in inside borders should be liberally supplied with water, and the shoots should be tied in, in good time. Vines in pots will require frequent supplies of liquid manure, and stopping of laterals must be attended to, to regulate the growth. Red spider must be kept in check by the use of sulphur, and the best method of using it is to paint the pipes with a mixture of sulphur, lime, soot, and water. Go over the bunches occasionally, and thin them regularly, to promote their beauty and the size of the berries. Melons just planted must be kept close and warm till the roots get to work, and then a short-jointed growth should be encouraged by moderate ventilation and abundance of light. Average temperature for pines 75 degs. at night, 85 to 90 degs. by day; for general collections, 65 to 70 degs. at night, and 75 to 85 degs. by day.

THE CULTURE OF THE CALCEOLARIA.

Many enquiries having been made as to the treatment necessary for the Calceolaria, we have preferred to introduce the subject by way of review of one of the numbers of a work which has been in progress during the past fourteen months, and a volume of which, under the title of "Garden Favourites,"* is now completed. The work has been published in sixpenny numbers, each number being devoted to some favourite flower, and is profusely embellished with wood-cuts and coloured portraits of noted varieties. The botany and literary associations of the several flowers are copiously treated of, and the chapters on culture embody the author's experience during many years practical de-

* Garden Favourites and Exhibition Flowers, their History, Properties, Cultivation, Propagation, and general management in all seasons. By Shirley Hibberd, author of "Rustic Adornments for Homes of Taste," &c. London: Groombridge and Sons.

votion to floriculture, so that its completion adds another volume to the class of books in which our literature is already so rich—readable books on practical horticulture.

After some remarks on the use of the Calceolaria for bedding, and an account of the introduction of the original species to this country, the author gives the following instructions on its

"GENERAL CULTIVATION.

"The whole code of Calceolaria-culture may be deduced from the recorded natural habits of the plant. Dryness, heat, a close atmosphere, and 'coddling' in any way are death to it. Green fly, thrip, red spider, and constitutional debility make friends with the Calceolaria whenever it is denied fresh air, a cool, moist soil, and abundance of light. Pot plants, therefore, whether shrubby or herbaceous, are not to be so exposed to the sun as to get their roots heated; nor must they ever flag for want of moisture—even in their young state damp is less injurious than drought; and, above all things such a degree of hardiness as they do possess is to be encouraged, and this even in winter, so long as they do not get positively frost-bitten.

"Calceolarias may be readily divided into three divisions, two of which are striking and distinct; the third is a recent blending of the other two. Herbaceous Calceolarias are most strictly florists' flowers; they are more tender than the shrubby kinds, less easily propagated and preserved, and belong to the greenhouse and the exhibition stage rather than to the garden. Their large blooms are produced on long foot-stalks, and usually have more character as regards floral development than the flowers of the shrubby sorts. Unlike the latter, they do not bloom continuously, but in a series of separate efforts: whereas, when once the shrubby kinds begin, they keep gay for the rest of the season, and their flowers being smaller and less perfect individually, but more profuse, coming from all parts of the plant, while the habit of the shrubby kinds is closer, more bushy and compact; and hence for bedding they necessarily take precedence.

"The third kind is the result of successful crossing of the other two; they are semi-herbaceous, combining the more hardy habit of the shrubby kinds with the large spotted or self-coloured flowers of the tender kinds. These latter are in much request, for the strictly herbaceous kinds are so apt to die off the first or second year after being raised, that growers become weary of purchasing them; and to obtain their fine flowers on woody-stemmed plants, having the habit of continuous blooming and easy propagation, was a triumph of no small import. We have yet to learn how far this crossing will effect the selection for bedding; the true shrubby kinds, having for the most part vividly-coloured flowers and strong constitutions, keep the lead that way, while the new intermediates are much esteemed for pot-culture.

"The soil for Calceolarias should be a compost of four parts yellow loam, one part leaf mould, one part very much decayed cow-dung, and one part sharp sand. In the earlier stages of growth more sand and less dung may be used.

"The comparative hardiness of the Calceolaria must never be forgotten. Though it takes a gentle heat kindly, and especially in propagating, its strength can only be promoted by a fair exposure at all seasons of the year, except during severe frost. The shrubby bedding kinds winter well in cold pits, or in the coolest part of a greenhouse; and where there is neither of such contrivances, a simple board on hinges in a sheltered corner, to keep off storms and intense sunlight, with a bed of coal-ashes beneath, will carry them safely through all the four seasons, except when severe frosts prevail."

Omitting Mr. Hibberd's instructions on hybridising and saving seed, the following may be useful to many who would like to raise a collection from seed.

"PROPAGATING BY SEED.

"It may seem a loose way of treating the subject, but it is really true that you may sow when you like, grow them in any way you please, and bring them into bloom at almost any season, if you have the aid of a greenhouse, and observe these principles of culture which arise out of the habits of the plant.

"Suppose you begin in March. Sow in pans, when the plants are up and strong, prick them out round the edges of pots an inch and a half apart. Keep the surface always moist, and as soon as they touch each other, pot them singly in three-inch pots, with loam, peat, a little sand, and well-rotted dung, and as soon as they fill the pots, shift into four-inch ones, and then bring them into bloom. They may be made finer still by another shift into six-inch pots, and it may be necessary to pinch out the trusses as they show, to increase the size of the plants; and when their roots fill the pots again, they may be allowed to bloom, and, if carefully tended all through, will not need tying up, which, in nine cases out of ten, is an ac tthat testifies of careless culture.

During the hot season when they blossom, they must have an abundance of water, liquid manure occasionally, and, if placed anywhere so that the sun beats on the pot, let them be plunged inside larger pots, and the space between the two pots filled in with moss kept constantly moist.

"CULTURE FOR EXHIBITION.

"To grow them for exhibition, it is best to sow any time in August, but it is quite possible to bloom fine plants in twelve-inch pots in May, by sowing as late as the first week in September. At this time of year it is best to sow them out of doors, and the procedure is as follows:—Select a shady spot, strew it with salt, and cover it with a layer of coal-ashes; then mark spaces for handlights, and lay another three inches of coal-ashes where the lights will stand, and another sprinkling of salt within and without the coal-ashes. This plan will give a quietus to worms and slugs. Then take some seed-pans or six-inch pots, half fill with drainage, on the drainage place a few lumps of tough peat or moss, and then fill up with a fine compost of leaf-mould, loam, and sand; water well, and leave them to settle; the next day sprinkle on the soil some dry mould very fine, press smooth, and sow the seeds thinly, giving them a covering of sand; put a square of glass over each pot, and then cover with the handlights.

"If properly managed, the pots will not require watering till the seedlings are up, but if they do, dew them by dipping a hard-brush in water, and then drawing the hand across it, so as to scatter a fine spray without washing up the seeds. As the plants show, tilt up the squares of glass by degrees, and at last take them away, and give air by degrees by tilting the hand-light. At this stage there is a liability to damping, and to prevent that, lift the plants tenderly in little patches, and prick these out into shallow pans, and treat as you would cuttings for a few days, watering by means of a brush, or surfacing the soil by pouring the water on a piece of tile held close to the spot. Watering overhead is a bad practice with young seedlings. In about three weeks, prick out again separately, an inch or so apart, and then note which take the lead; but it will be worthy of notice that the backward plants are likely to turn out the best.

"The next shift will be to three-inch pots, though some of the forward plants may have four-inch, to be shifted again about the middle of October into five-inch for blooming in May. The weak ones may be pricked out once more, giving them clear three inches every way. After this shift, prepare them for wintering; a cool frame does well for them, indeed, they may be raised under frames instead of hand-lights. All they need is to be kept moist and secure from frost, say in a temperature for herbaceous kinds of from 38 to 46 degs. The shrubby sorts will bear exposure even to 32 degs., if kept hardy by a good circulation of air previously and during every intermission of frost; and though all are fond of moisture, it must not stagnate much about them when wintered at a low temperature. If in a greenhouse, give them plenty of air, and guard against close heat and dryness. Plunging in moss is always a safe plan for Calceolarias in a greenhouse. If any are wanted early, they may be hurried into bloom at a temperature of from 50 to 60 degs., if kept plunged and well supplied with air.

"After the winter frosts are over, they make a rapid start, and to keep pace with their growth, shift them as they fill their pots; and if large specimens are required, pinch off any flower-stems that appear, and give them another potting. In this way the shrubby sorts will fill twelve-inch pots by the end of May, and bloom superbly at the end of June or the beginning of July. Herbaceous kinds bloom best in six-inch pots, but if kept from flowering, may be potted on and bloomed in eight-inch pots to advantage; indeed, the first-blooming stems frequently come very irregular, and if pinched off when about three inches above the surface, and the plant shifted to a pot one size larger, they throw up several stems of equal strength, and if they require it, may be neatly staked so as to enable them to expand regularly.

"Although shrubby Calceolarias may be grown successfully in one uniform compost of sweet fibry loam four parts, sand, leaf-mould, and old cow or stable-dung one part each; it is advisable in the final potting of the shrubby kinds to adopt Mr. John Green's method, the value of which is proved in his great success as a raiser of first-class varieties. He first secures good drainage by a layer of potsherds, then a quantity of bog-mould and cow-dung in lumps as big as a hen's egg, then potsherds again, filling up with a mixture of loam and well-decayed cow-dung. The plants are then placed where they can be shaded with gauze or tiffany, and the house being closed early in the afternoon, the leaves are syringed all over, and the temperature kept at 45 degs. at night and 60 degs. in the day, giving air as much as possible. As soon as the plants make fresh root, they may have abundance of water, and, in addition, once a week liquid manure from well-fermented sheep's-dung."

The author recommends propagating the

herbaceous kinds by division, the plants after blooming to be placed in a cool frame, and earthed up, to cause the side shoots to make roots; he then describes the following method of propagating the shrubby kinds.

PROPAGATING BY CUTTINGS.

"To secure abundance of cuttings of the shrubby kinds, plant them out in the garden borders as soon as they have done blooming, and stop the leading shoots. As soon as these shoots show a little woodiness of texture, slip them off, trim away the lower leaves, and then insert in a cutting-pot, with an inch of pure white sand on the top of the compost. In a cold frame they will root in three weeks, when they must be potted off in small pots, kept shaded for a week in a cool frame, and then set out in the open air on a bed of coal-ashes till the pots are filled with roots, and from that time the culture will be the same as detailed in the previous chapter. On a north border in autumn, shrubby Calceolarias may be easily struck in almost any quantities from a few strong plants that have flowered. Pascall's patent cutting-pot, which is made with a rim to receive a bell-glass, does admirably for such propagation. Though generally used in the culture of ferns, these pots are very convenient for cuttings of all hard-wooded plants; we can keep them close with a glass, and at the same time have the cuttings next the side of the pot, where they always root most readily. Since autumn-struck plants grow very fast in the spring, there is little need for keeping old stools through the winter, unless to take more cuttings from in spring. Mild bottom-heat makes them strike rapidly then, but the grower must be cautious not to cut off stems that are setting for bloom, for these will never strike. A blooming stem may be known by the space between the joints becoming longer than in young growing wood; and if cuttings from plants in which the space between the joints has begun to lengthen be desired, it will be necessary to top them; they will then throw out side-shoots, and every one of these will make good plants if struck with bottom-heat in spring, and then grown on quickly in the way already described. There is nothing like young plants; old ones are seldom worth their keep; and for bedding out, the shrubby stock ought to be struck in autumn."

LIST OF VARIETIES.

In the work from which we are quoting, the following are accompanied with descriptions of habit, colour, &c., which, for want of space, we are compelled to omit, giving the names only. The * indicates suitability for bedding purposes.

"*Twelve New Calceolarias,*

Raised by Mr. Cole, of the Keyfield Nurseries, St. Albans.

"Gem, Indispensable, King of Yellows, *Yellow Prince of Orange, *Lady Middleton, *Yellow Dwarf, *Rubra, Snowflake, *Dropmore, Canary Bird, Clown, *California.

"*Fifty-seven Older Varieties.*

"Those marked for bedding are good for pot culture, but *not* vice versa.

"Albira (Cole), Ajax (Pince), *Aurea floribunda, *Amplexicaulis, Attraction (Perkins), Brunettia (Henderson), *Beauty of Montreal, Camden Hero (Barnes), *Crimson King, Correggio (Henderson), *Cleopatra (Cole), Comet (Cole), Conspicua (Cole), *Desirable (Perkins), Don Saturnio (Henderson), Don Francisco, (Henderson), Eclipse (Rollison), Ethel Newcome (Henderson), *Erecta, Emperor Napoleon (Youell), General Canrobert (Henderson), *General Pelissier (Henderson), *Goldfinder (Cole), Golden Cap, *Golden Chain, *Hawk (Cole), Harlequin, (Cole), Hebe (Cole), Kayi, *King of Sardinia (Cole), Lady Grenville (Cole), *Lemonade (Cole), Lady Isham (Perkins), Maggiore (Henderson), Minnie (Henderson), Norma (Henderson), Negro (Nelson), Novelty (Cole), *Orange Perfection (Cole), *Orange Boven (Cole), *Pallida (Cole), Pilot (Cole), *Prince of Orange (Cole), Purity (Cole), Rosy Morn, Red Rover (Henderson), Surprise (Henderson), Sultan, *Sulphurea splendens, Shirley (Henderson), Shankleyana, *Superb (Turner), Tamberlik (Cole), Vezzoza, Viscosissima, Wellington Hero (Henderson), Wildfire (Henderson."

Considering the beautiful manner in which these treatises are got up, both as to typography, and the beauty of the illustrations, it is the cheapest series of the kind ever attempted. In the number before us, the coloured portrait of Cole's "Gem" is worth more than the sixpence charged for the number. The work has had a large sale in its serial form, and will doubtless sell still more extensively when presented to the public in the form of a handsome volume.

TO CORRESPONDENTS.

THE WINGED PEA.—The applications for seeds of the Winged Pea were so numerous—numbering nearly five hundred—that it would have been impossible to have supplied all the applicants, unless the number of seeds sent to each had been reduced. For the first few days after the April number was published, six seeds were enclosed in every envelope sent, but the arrival of heaps of letters by every post, compelled me to reduce the number to four, and I think some of the later applications were answered with threes only. As it is a most prolific plant, those who like it when they see it in bloom, may save plenty of seed by leaving the pods to ripen, so that in a second season, they may have plenty. The remark of a correspondent that *winged* Peas ought to go further than any other kind, is somewhat borne out in this case, for letters have come from very distant parts for them, and the applicants include people of all ranks;—titled dignitaries, nurserymen, gardeners, and humble cottagers. It is a pleasure, therefore, to know that the FLORAL WORLD is winged and takes its monthly flight to many a remote corner of the world, as well as to the thousands of green nooks nearer home. Having to travel much during the past month, and my engagements being unusually numerous and pressing, I could not attend to the distribution myself, but those friends who sent me seeds in exchange, and others who asked for information, or expressed kindly regards—and the number of the latter was agreeably many—are desired to accept this general acknowledgment of their welcome favours. Such letters as seemed to require my attention, were handed over to me, and I believe every one has had acknowledgment. But among so many, something may have escaped me, and should it so happen, I beg those friends who may think me neglectful, to believe that I have no greater pleasure than in receiving their letters, and answering them to the best of my ability, but *leisure* is an enjoyment I know nothing of, and occasional absence from home compels me often to defer replying to the many letters I receive until they have accumulated to a tremendous pile. "Better late than never," is then the motto, and "first come, first served," the rule of practice. The Winged Pea is quite hardy, grows from four to six inches high, and branches very much, so as to require at least four inches from plant to plant. It likes a deep moist loam, and may be planted any time from the first of February to the first of June. As a matter of course, it does not require sticks. It is quite an old thing, and its botanical name is Tretragonolobus purpureus, formerly classed with Lotus, as Lotus tretragonolobus.—S. H.

FAIRY RINGS.—*A Kentish Amateur* asks for information as to those rings of grass which grow above the ordinary height in meadows and in woods, popularly called "Fairy Circles," and supposed to be the haunts of the fairies. Our correspondent is in error, in supposing that the question has never been satisfactorily answered, for this is one of the many pretty fragments of folk-lore which science has robbed of its poetry, by a very clear exposition of the facts of the case. In a work on country scenes and occupations, called "Brambles and Bay Leaves," lately published by Messrs. Longman there is a full account of the superstition itself, and an analysis of the natural phenomena attending it. The author states that the origin of every fairy ring is a fungus, and the *agarics* are those which most commonly give rise to them. In the decay of a fungus, a large amount of phosphates is returned to the earth, and the grass which was originally displaced by it, takes possession of the spot, and the phosphates deposited there, furnish it with a rich manure, in which it grows more luxuriantly than elsewhere. In the meantime, the fungus has distributed its spores in a circle, and when this circular growth of fungi passes away, the grass takes possession of the first ring so formed, and its vigorous growth gives it the rich dark colour by which it is distinguished from the surrounding herbage. The fungi which formed the first ring decay in their turn, and scatter a fresh ring of spawn outside the first; their growth being always towards the soil on which there have been no fungi, while the grass regularly follows, and thus the ring grows larger year after year. It would occupy many of our pages to follow the explanation into all its details, and we must therefore beg our correspondent to remain content with this brief reply, unless he should refer to the work from which we gather these particulars, in order to study the subject in all its bearings. We may, however, add, that edible fungi are very commonly found on fairy rings, and are associated with them in the minds and experiences of those who hold to the ancient notion of the fairies dancing at night on these, their magic circles. The best champignons we ever gathered were from a fairy ring on Hampstead Heath, some fifteen years since.

CULTURE OF HYDRANGEAS.—*Li.*—We grow a great number of Hydrangeas in the same way as fuchsias, coccinea, and such things out of doors. We plant in deep loam on a shady border, and give abundance of water all the summer. In autumn they are cut over close and mulched with leaves to protect from frost. In spring they throw up strong shoots, and flower as freely as a Monkshood or a Dielytra. The shoots require a little thinning, to give shape to the plant, and strength to the bloom. For pot culture, hydrangeas may be struck at any time, and nothing roots with more certainty, if young side shoots are taken and put in sand, with a little bottom heat. Old ripe shoots will strike in the open air, but take longer. The best soil is one third peat, one third leaf mould, and one third strong loam; the pots to be well drained, and the plants to have plenty of water. Weak manure water promotes the formation of fine heads of bloom; cuttings struck in summer and grown in a greenhouse, and stopped in the autumn, will flower early the next season; and there is no plant more certain to bloom freely, if the wood is well ripened in the autumn. The production of blue hydrangeas depends entirely on the nature of the soil; there is no specific to be relied on, though a solution of alum is often used for the purpose. When the blue colour is obtained, it is not permanent, and it occurs only with young plants at their first blooming. For bedding plants, the shoots containing bloom-buds may be taken off, and struck with a moist bottom heat, and then bedded out to bloom; they manage them this way at the Crystal Palace, but we cannot say that we admire such beds, or think the hydrangea at all a fit subject for masses, though truly beautiful in pots, and in good specimens in borders and shrubberies.

PLANTS FOR CONSERVATORY. — *R. E.* — Without knowing the sort of structure you wish to stock, it is impossible to advise. For instance, Camellias are fine conservatory plants, but it would be absurd to plant them in a Wardian case. From your note, we cannot tell whether yours is a Fern case of the dimensions of a few square

feet, or of the size of the Crystal Palace. We cannot give specific answers to vague queries. Write again.

SOWING THUNBERGIAS.—*A. B. C.*—Thunbergias, Daturas, &c., may be raised without a hot-bed in a greenhouse, but it would be better to wait till June, unless you can place the pan containing the seed on the top of a boiler, or on the flue to give them a start. The Waltonian Case is a capital invention for such things, as by means of an oil lamp, costing only a shilling a week, hundreds of seedlings of stove and greenhouse plants may be raised either in a greenhouse or sitting-room. We once saw an old gardener, who was pressed for room, starting seeds of stove plants in a shallow zinc pan on the top of a kitchen boiler, where the soil was kept at 80 or 90 degs. till the seedlings began to rise, when room was found for them in a house where they could have sun and fire heat, as well as light, to keep them going. Persons whose means are limited, should defer sowing seeds of tender things until the season is a little advanced; after Midsummer the ground is a natural hot bed, and by shutting a frame close in the full blaze of the sun, many seeds that ordinarily require artificial heat, may be started during May and June.

ORNAMENTAL GRASSES.—*Graminæ.*—We quite agree with you that this subject deserves special treatment, and we shall endeavour to fulfill your wish. At present our anxiety to meet the expressed wishes of many readers, prevents us devoting any space to the subject, but your suggestion shall not be forgotten. We have just sown on a border appropriated to botanical rather than ornamental subjects, the following very pretty grasses, namely:—Agrostis stolonifera, brown bent Agrostis; Annual Poa; Festuca ovina (useful for edgings), Festuca duriuscula, Festuca dumel rum, Meadow Fescue, Evergreen Perennial Rye, Sweet Vernal (Anthoxanthum), Meadow Fox-tail, Everlasting Yellow Suckling, Crested Dog's tail, and Cock's foot. The noble sedges of South America will some day find their way into our collections, and the Pampas Grass will have a rival in the beautiful Schizolepis Geitneriana, the Scleria, and others of its class. The Golden Arundo australis is a beauty not often seen, and the European Cladium Germanicum, deserves a place in collections of Graminæ. The increasing love of ferns and grasses, is an evidence of greater refinement and taste, for in the gradations of the beautiful form must certainly take precedence of colour, or sculpture would have to play second fiddle to painting. The FLORAL WORLD will certainly take in hand the whole stock of ornamental grasses.

PLANTS FOR A ROOTERY.—*Rusticus* will find just the information he requires in Mr. Copland's article in the present number, and he may also refer to page 95 of last month's number of the FLORAL WORLD, where *Vega* is advised as to the use of roots on a lawn. To hardy ferns and ornamental grasses, dwarf growing conifers, such as Junipers, Pinus humilis, &c., with Gaultheria procumbens, and double Furze may be added. For gay effects, such traillers as Verbenas, Abronias, Tormentillas, Vinca major variegata, convolvulus, and the variegated varieties of Ivy will be found useful. In the drier parts of rockeries, Sedums, Houseleeks, Variegated Alyssum, Variegated Daisies, Mountain Pinks, any species of Chieranthus, and Antirrhinum, with hardy Heaths, and Salvias would be useful. The Golden Stonecrop, of which we have, through the kindness of the original possessor, obtained a few plants, will soon be used extensively, for the sunny sides of rockeries, and during winter will make them as gay as Sedum acre does, when it is blazing with bloom.

STRAWBERRY CULTURE.—*Major General G*—— offers a hint to the growers of strawberries, apropos of our recent review of Mr. Mc Ewen's valuable work on the subject. He says, if old tan is used to fill up the intervals between the strawberry plants, snails will avoid touching the fruit, and it will grow perfectly clean. The General also suggests, that we should attach prices to plants noticed in our pages. This would be trenching somewhat on the dealer's department, but we know not but what it might be done fairly, and as a matter of information. If, on further consideration, we conclude that it may be done, we shall attach the average prices to our notices of new plants. In reply to the General's query as to the price of Berberis Japonica, we beg to inform him that the prices range from half-a-crown to fifteen shillings. We paid Mr. Standish twelve and sixpence for a strong plant, with seven fine leaves thoroughly hardened, which is now breaking beautifully. We should recommend no one for the next twelve months to pay less than half-a-guinea or seven and sixpence, so as to ensure specimens that will stand the open air at once.

DUNG BED.—*Novice.*—You made up your bed too quick, and the heat burnt the cuttings; quite a common accident for a novice, and not altogether a rare thing with practical men. A few days ago we met one of our most eminent market growers, with a face as long and uninviting as a barn door—he had just lost the best of his stock of cucumber plants in a similar way. You should have turned the new dung twice at least, and have got it a little dry after such a soaking, but like many other people, you were in too great a hurry to do the thing properly. When we speak about the heat necessary for cuttings, it must be understood as *bottom* heat, and from the end of March to the end of April, cuttings of the majority of bedding plants will stand 90° till they get rooted, but it must be a sweet moist heat.

GREEN FLY.—*A. B.*—To fumigate your small pit, take a twenty-four sized pot and fit within it a piece of old tile, such as is used for covering smoke flues, or, better still, a piece of iron one inch thick and three inches over. Get a quarter of a pound of strong shag tobacco, and soak it in a strong solution of salpetre, and when quite dry, make the tile or iron red hot, drop it into the pot, place the tobacco on it, and shut the pit close so that none of the smoke can escape. Leave it so all night, and in the morning syringe the plants. A week after, repeat the process if it appears to be necessary, and you will be free of fly for months afterwards. Two smokings are better than one, because there is usually a second crop of fly produced by such as escaped the first smoking.

WATERING PLANTS.—*Z. Z.*—No wonder your plants look chilled, if you dose them with abundance of *cold* water. Our plan of watering greenhouse plants, especially when they are growing or blooming freely, is first to throw into the water pot a small nugget of soda or pearlash, say as large as a pea to every gallon. On that we pour about a pint of boiling water, and then fill up with cold. It is then just tepid, and if the plants want water, a drench over head and sufficient to soak the roots, makes them grow heartily and vastly improves their healthy green colour. We frequently use water quite hot, and have syringed blooming cytisuses, geraniums, primulas, cinerarias, &c., with it all this season.

COOL GREENHOUSE.—*J. R.*—Your explanation of the defects of the house alter the case considerably. You should grow plenty of herbaceous spring flowers and Cape and British bulbs, for which, bare protection from frost is sufficient.

Thanks for the fern roots: we will not tax you for more.

TRUMPET LILY.—*Li.*—This lovely plant is one of the easiest to manage. In many places of the south of England, you see them in every cottage window, where they flourish as well as geraniums. The warmth of a room during winter, is sufficient for it, with plenty of water when it begins to throw up its bloom, and when going to rest, to be kept nearly dry. Fibry peat, with rich loam in lumps, is the best soil for it. It is not a Lily, but an Arum, and its botanical name is Calla Æthiopica.

VARIOUS.—*T. H. E.*—Stocks and Asters like good loam, with a little old dung and plenty of water all the summer. Most other annuals do best in poor soil. *Rus in urbe*—Calceolarias require a compost of loam, four parts, leaf mould, one part, one part decayed cow-dung, and one part sharp sand. Young plants like a little peat and less dung. Plants or seed of Pampas grass may now be obtained of any respectable nurserymen. Apply to any who advertise in the FLORAL WORLD. *Amateur.*—Carnations thrive best in a soil composed of rotted turf, very old dung, and turfy peat, equal parts; with one half part of clean gritty sand. Your plants should have ful exposure and plentiful watering. Those for bloom this season should have been in their blooming pots by the middle of last month, at the latest Pot them in pairs and give plenty of pot room, and as the flower stems rise, give a weekly dose of manure water. *J. Sweet.*—Thank you for your kind letter and its suggestions. *We* have had similar thoughts.—*J. C.*—Next month.—*H. D. P.*—Pour boiling water round the sides of the frame, or strew old tan over the surface of the bed between the plants.

METEOROLOGICAL CALENDAR FOR MAY.

31 DAYS.		WEATHER NEAR LONDON, MAY, 1857.				31 DAYS.		WEATHER NEAR LONDON, MAY, 1857.			
		BAROMETER.	THERMOM.	WIND.	RAIN.			BAROMETER.	THERMOM.	WIND	RAIN
		MAX. MIN.	MX. MN. MN.					MAX. MIN.	MX. MN. MN.		
S.	1	30.087—30.070	56 37 46.5	N	.00	M.	17				
S.	2	30.073—30.016	56 26 41.0	E	.00	Tu.	18				
M.	3	30.133—30.115	57 31 44.0	NE	.00	W.	19	No Returns.			
Tu	4	30 169—30.105	56 23 39.5	NE	.00	Th.	20				
W.	5	30.230—30.210	55 29 42 0	NE	.00	F.	21				
Th	6	30.219—30.184	55 25 40.0	E	.00	S.	22	29.846—29.793	60 47 53.5	NE	.20
F.	7	30 135—30.111	56 28 42.0	E	.00	S.	23	29.598—29.462	66 49 57.5	E	.23
S.	8	30.029—29.908	60 32 46.0	E	.00	M.	24	29.623—29.472	70 40 55.0	SW	.00
S.	9	29.805—29.731	65 34 49 5	E	.00	Tu	25	29.492—29.384	69 40 54.5	E	.05
M.	10	29.691—29.626	60 45 53.0	E	.01	W.	26	29.629—29.520	70 38 54 0	S	.00
Tu	11	29.765—29.623	72 38 55.0	E	.30	Th	27	29.780—29.646	73 36 54.5	SW	.00
W.	12	30.027—29 934	75 31 53.0	SW	.04	F.	28	29.835—29.573	74 50 62.0	E	.00
Th	13	30.054—30.002	72 49 60.5	NE	.00	S.	29	29.984—29.881	66 49 57.5	NE	.00
F.	14	29.975—29.950	71 40 55.5	E	.00	S.	30	30.027—29.985	63 39 51.0	NE	.01
S.	15					M.	31	30.062—30.023	68 32 50.0	E	.00
S.	16	No Returns.									

AVERAGES FOR THE ENSUING MONTH.

THE month of May, 1857, was unusually cold, the temperature of the first week being, 9°; and heat of the second week, nearly 2° below the average: frost occurred on eight nights, and dry cutting east winds were prevalent throughout the month. During sixteen years past the averages have been as follows:—Thermometer, max. 64°; min. 42°; mean 53°; Barometer at sea level, 29.934, and the fall of rain 1.9 inches, the same as the month of January. During thirty-one years past, the highest temperature observed occurred on the 23rd, 1847—Thermometer 89°; and the lowest on the 2nd, 1855—Thermometer, 20°.

PHASES OF THE MOON FOR MAY, 1858.

☾ Last Quarter, 6th, 6h. 40m. p.m.
☽ First Quarter, 19th, 10h. 20m. p.m.
● New Moon, 13th, 7h. 48m. a.m.
○ Full Moon, 27th, 6h. 5m. p.m.

MEETINGS AND EXHIBITIONS, MAY, 1858.

TUESDAY 4th, Horticultural Society of London.—THURSDAY 6th, British Pomological and National Floricultural, St. Martin's Hall.—WEDNESDAY 12th, Royal Botanic Society: Exhibition of Plants, Flowers, and Fruits.—SATURDAY 15th, Manchester Botanical and Horticultural Society: Exhibition of Flowers, Fruit, &c., in the Society's Garden.—TUESDAY 18th, and WEDNESDAY 19th, Manchester Horticultural First Grand Exhibition in the Free Trade Hall.—WEDNESDAY 19th, Colchester.—SATURDAY 22nd, Crystal Palace First Grand Horticultural Exhibition.—WEDNESDAY 26th, Exhibitions at Leicester, Oxford, and Reading.—THURSDAY 27th, National Floricultural, St. Martin's Hall.—THURSDAY 27th, Royal National Tulip Show, Botanic Gardens, Sheffield.—THURSDAY 27th, Royal Horticultural Society of Dublin.

*** *Secretaries will oblige by forwarding Announcements, Schedules, &c., of forthcoming Exhibitions.*

THE

FLORAL WORLD

AND

GARDEN GUIDE.

JUNE, 1858.

NDLESS as are the varieties of colours and tints in the vegetable kingdom, the artist finds little difficulty in grouping them efficiently for the production of a diversity of effects, though the practised gardener may occasionally, and the amateur frequently, fail to turn to the best account the several distinct colours, and their intermediates, which he may have at command. At this season of the year, a clear idea of the relations of colours to each other, and the effect upon the eye of the several arrangements of which they are capable, is of more importance than at any other season; for in bedding and planting groups in borders, the arrangements determined on, whether good or bad, must, as a rule, remain to the end of the season, and it is important that every one interested in the culture and display of flowers, should possess a definite knowledge of the laws of harmony. However individual tastes may differ, certain rules are universally applicable, and the observance of such rules, so far from limiting the exercise of inventive ingenuity, serve rather to direct it; for taste is as subject to law as science is, and may, indeed, be reduced to the form of a science, when its fundamental principles are properly understood.

Every ray of white light consists of red, yellow, and blue, in fixed proportions, and when passed through a spectrum, the colours which compose white light are separated, and we see them blend one into the other as they pass through the intermediate shades by which they are connected together. Midway between the primaries of the spectrum, the secondaries appear in their purest forms of orange, green, and purple; a third series infinitely various in tone, filling the spaces between the primaries and secondaries. When we speak of complementary colours, we imply those which are added to other colours in order to make white light; for instance, what is the complementary of red? To make white light, we want the remaining rays of the spectrum, namely, blue and

yellow—these are united in green—hence green is the complementary of red. In like manner, the complementary of yellow is purple, which consists of red and blue, the remaining portions of the spectrum; and, in regard to the secondaries a similar law applies; rose colour, which consists of red with a small admixture of blue, has, for its complementary, a pale yellowish green, in which there is just enough blue to make up for the small amount contained in the rose.

It is interesting to observe how nature, in the production of numberless colours and tints of even greater variety than the tints of the rainbow, adheres to these principles in the external phenomena of vegetation, and the adaptation of the human eye to receive impressions from them. The eye, after gazing for any length of time on a certain definite colour, say red, is so impressed with it, that the idea of redness in the mind is not readily effaced, and it begins to fatigue. But if the eye can turn at once and view the complementary of red, that is, green, in which no red exists, a sense of relief is experienced, and the contrast is one which we pronounce agreeable. But if the eye turn from red to orange, or from red to chocolate, a feeling akin to pain is the consequence, and even if the mind is not at the moment occupied with colour as a subject of thought, a sense of annoyance is still the result, even if we are for the time unconscious of the cause. When we come to consider the case, we pronounce the contrast to be a bad one, and that it is so, is obvious, for each of the colours placed to relieve red contain in themselves so much of red as an element, that the law of contrast is violated, and we pronounce the man, who would place such colours in juxtaposition, as being devoid of taste.

As Nature, or rather the Author of Nature, has so constituted the organs of vision, so in the scenery of the world, the various hues are naturally so arranged and disposed as to give the highest pleasure to the mind of the observer. Who, amongst the lovers of colour has not started with delight at the first sight of a ruddy poppy, glittering all alone on a green bank, its full lustre set off by the purity of the verdure surrounding it, and who, on contemplating the beauty of a bed of Tom Thumb geraniums in full bloom, must not have remarked how the fresh hearty green of the foliage contributes to the dazzling glow of the flowers? We take praise to ourselves for our skill in hybridizing, but if Nature did not take care to give us a foliage adapted to the flower which results from the cross, our labours would often be in vain. Take *Cerise* geranium for example, in which the foliage is of a bluish green, just complementary to the tint of the flower, or *Shrubland* petunia, in which it is of a pale green, the small amount of blue in the blossom being met by an extra amount of yellow in the leaves, or go to the wild flower—and which, by the way, may be a hybrid long ago hybridized by the bee—and see how beautifully yellow and orange combine with purple in the heartsease, though in this respect there are exceptions which give occasion for the mention of another class of harmonies.

Harmonies of *analogy* are of a different kind to harmonies of *contrast*. In harmonies of analogy different tones of the same scale are united, or tones of the same depth belonging to different scales are associated, as in a bed of verbenas of various shades of red, from *Miss Trotman* to Defiance. But the pleasure we should derive from such a bed, if well

arranged, would result from the combination of the several tints; and, in like manner, the grouping of various shades of purple, slate, and blue, or of any of the modifications of pure colours, would only be satisfactory as they might lead the eye forward to the predominating tint, by the observance of a just proportion between them—indeed, *proportion* of colour in gardening effects is as important as contrast, and unless colours are well balanced, some one of them will take the lead and mar the effect intended.

The whole philosophy of this matter of colour has lately undergone a very full investigation by M. E. Chevreul, the director of the French Dye Works of the Gobelins, and his work, published by Messrs. Routledge,* is one that should be attentively studied by every gardener, professional and amateur, for the principles laid down and illustrated, apply equally to the planting of a park, a shrubbery, or a flower garden, and, indeed, to the simple making up of a boquet, as they do, also, to the art of painting and decorating generally, in all of which a proper disposition of colours is a matter of the first importance. The applications most concern us here, seeing that it would consume too much space to investigate the fundamental laws. "Red and green," says M. Chevreul, "are, of all complementary colours, the most equal in depth; for red, as regards its brilliancy, is midway between yellow and blue, and in green these two extremes are united." Who can doubt that this natural fact is the cause of the universal love for scarlet flowers, which, with their own foliage, or the green turf out of which they spring, when bedded on grass plots, present the boldest and most pleasing of all the contrasts possible in nature. Blue and orange are more opposed to each other than red and green, because the least brilliant colour, blue, is separated, while the most brilliant is combined in orange. Violate the rule, and plant purple verbenas or petunias beside the lovely *lobelia ramosoides*, and the flowers, however abundant and good in themselves, are almost wasted, because placed in unhappy juxtaposition. "Yellow and violet form an arrangement, which," says Chevreul, "as regards depth of tone, is most distinct, since the least intense, or lightest colour, the yellow, is separated from the others." Hence, calceolarias, banded with purple verbenas, or blue lobelias, have a rich effect; but place red and orange together, and you have discordance, because the orange contains red, and the red a small portion of yellow. If you look round the gardens just now, you will see many examples of geraniums and calceolarias in juxtaposition. Even at the Crystal Palace the heresy is adopted, but the effect is a vulgar glare of colour, which tires the eye, and gives no pleasure to a cultivated taste. We particularly noticed this last summer, when making notes, at Sydenham, of the various bedding effects. Under the flag-staff in the Rosary, were some beds of geranium and calceolaria, which were tolerable, because one is used to them; but, on turning to the sunk panels, and comparing them with another set of beds, composed of scarlet geraniums and purple verbenas, the luminous and splendid beauty of the latter made

* The Laws of the Contrast of Colour, and their application to the Arts of Painting, Decoration, Dress, Landscape, and Flower Gardening, &c., &c. By M. E. Chevreul. Translated by John Spanton. Second Edition, Illustrated. London: G. Routledge and Co.

the grossness of the calceolarias so used, conspicuously apparent. Yet, if the geranium had not had a good dash of orange in its red, and the verbena a predominance of blue—points of the utmost importance—the result would have been anything but a success, for in all contrasts a system of exact compensation must be adhered to. In the use of blues and purples, we have here indicated to us another important rule, and that is, that green seldom heightens their beauty, owing to its containing a large proportion of the same element, without an element of a complementary kind—orange—to effect a compensation. Among the most agreeable of contrasts enumerated by M. Chevreul, are the following:—White, orange, blue, white—white, orange, white, blue, white—white, red, white, orange, white—(here, red and orange, a bad juxtaposition, is just saved by the white intervening)—white, red, white, yellow, white—white, red, white, blue, white—white, red, white, violet, white—white, orange, yellow, white—white, orange, white, green, white—white, orange, white, violet. Black is equally useful as white to relieve, but as the florist has little to do with black, some of the uses of grey, as a relief agent, may be enumerated, as under that term we may class many of the pale verbenas, variegated leaved geraniums, alyssums, &c. Grey and blue, grey and violet, form arrangements of which the harmony of analogy is agreeable, yet less so than black with the same colours. Grey and orange, grey and yellow, grey and bright green, form equally agreeable arrangements. Grey and rose are dull, but grey, red, green, grey,—and grey, red, grey, green, grey are passable. Blue and orange make a good contrast, but if grey be added, it should be grey, blue, or orange, grey, or grey, blue, grey, orange, grey. Yellow and violet is a delicate and pleasing contrast, but if grey be added, it should be thus: grey, yellow, violet, grey, &c., or grey, yellow, grey, violet, grey. In bringing blue and violet near each other, grey is a good separator, thus: grey, blue, violet, grey, &c., or grey, blue, grey, violet, grey, &c. When two colours accord badly together, it is always advantageous to separate them by white. "In the application of the law of contrasts to the arrangements of flowers," says M. Chevreul, "we must never forget the difference between the assemblage forming a line of plants, and an assemblage of flowers belonging to plants of various heights, standing on different planes, so as to produce the effects of a picture. In a linear arrangement, for example, there is nothing more unpleasant than the blue flower of the German iris, associated with the light violet of the lilac; but if we add to this association, large tufts of *Alyssum saxatile*, Persian iberis, and red tulips, so that the golden yellow, white, and deep red appear on one plane, and the deep blue and the light violets on a more distant plane, we shall retain general effects of a most agreeable kind." In this way the author follows, to its conclusion, as applicable to each of the decorative arts, the laws which govern the distribution of colour as matters of taste, and we most heartily commend this concise, agreeably-written, and beautifully illustrated work to the attention of the horticultural public.

For London folks, the exhibition of American Plants, by Messrs. Waterer and Godfrey, which will be continued during the whole of June, in the Ashburnham Pavilion, at Cremorne Gardens, will be the most attractive

floral event of the present month. Those who witnessed the last exhibition of the kind cannot but feel gratified at a repetition, for the specimen plants shown, were, in many cases, of a kind such as it would be scarcely possible to place on the stands of an ordinary exhibition, and the great space devoted to one class of plants gives the opportunity for illustrating that class in all its varieties of habit, foliage, and flower. It is time we had some better term of a general kind than "American" to describe these, for if we class together all the plants commonly known as such, we shall find that so large a proportion belong to the Old World that the term is by no means representative. Rhododendrons this season are particularly fine, owing to the perfect manner in which, for the most part, the wood was ripened last year. These will give a peculiar characteristic to the exhibition, but conifers, and berry-bearing shrubs, will divide honours with them, and add their graceful forms and diversities of foliage to the improvement of those specially attractive on account of colour. We anticipate a great success for the Messrs. Waterer, and feel assured that many country friends will find, in the event, a fair excuse for a trip to the metropolis.

The committee of the Grand National Rose Show have issued their schedule, and all preliminaries for the exhibition are now completed. It will be held in St. James's Hall, on Thursday, July 1, and the public will be admitted on payment of a small fee. The prizes are in four classes:—1. Growers for sale. 2. Amateurs who regularly employ a gardener. 3. Amateurs not regularly employing a gardener; and 4. Open to all. The first class is arranged as follows:—

Best collection, three trusses of each, silver cup, value 10 guineas; 2nd, silver cup, value 5 guineas.—Best collection, one truss of each: 1, a silver cup, 5 guineas; 2nd prize, 3*l*.—Best collection of 48 varieties, single trusses: 1, silver cup, 5 guineas; 2nd prize, 3*l*.—Best collection of 24 varieties, single trusses: 1, silver cup, 5 guineas; 2nd prize, 3*l*.—Best collection of moss roses, single trusses: 1, silver cup, 5 guineas; 2nd prize, 2*l*.—Best collection of teas and noisettes, three trusses: 1, silver cup, 5 guineas; 2nd prize, 2*l*.—Best collection of Gallica roses, three trusses: 1, silver cup, 5 guineas; 2nd prize, 2*l*.

The second class has fewer sections:—

Best collection, single trusses: 1, silver cup, 10 guineas; 2, silver cup, 5 guineas; 3, piece of plate, 3*l*.—Best collection of 24 varieties, single trusses: 1, silver cup, 10 guineas; 2, silver cup, 5 guineas; 3, piece of plate, 3*l*.—Best collection of 15 varieties, single trusses: 1, silver cup, 5 guineas; 2, piece of plate, 3*l*.; 3, ditto, 2*l*.—Best collection of 6 varieties, single trusses: 1, silver cup, 5 guineas; piece of plate, 3*l*.; 3, ditto, 2*l*.

Class three is equally liberal:—

Best collection of 24 varieties, single trusses: 1, silver cup, 5 guineas; 2, piece of plate, 3*l*.; 3, ditto, 2*l*.—Best collection of 12 varieties, single trusses: 1, silver cup, 5 guineas; 2, piece of plate, 3*l*.; 3, ditto, 2*l*.—Best collection of 6 varieties, single trusses: 1, silver cup, 5 guineas; 2, piece of plate, 3*l*.; 3, ditto, 2*l*.

The extra class, open to all classes, is:—

For the best group of roses, arranged in a vase or basket: silver cup, 5 guineas.

The 1st of July will certainly be a gay day in London—it will be our Feast of Roses; and we shall emulate the Orient in this, our first national ovation to the Queen of Flowers.

The June show at the Crystal Palace is to be extended to two days, namely, Wednesday and Thursday, the 16th and 17th of June; the autumn show will also be for two days, Wednesday and Thursday, September 8th and 9th The grand Chiswick fête of the Horticultural Society will be held on Wednesday and Thursday, the 9th and 10th of June, and there will be a department especially for horticultural implements and miscellaneous articles. On Wednesday,

the 2nd, the Royal Botanic Society will hold an exhibition at the gardens in Regent's Park, and rhododendrons will constitute a distinct feature. Another fête, at the same place, is fixed for the 23rd. Among the various announcements of exhibitions, we may here name the exhibition of the Royal Oxfordshire, June 15th; Warwick, June 30th; Handsworth, Birmingham, 29th; and Hereford, 29th. Dates of other local shows will be found in our usual list.

THE AUSTRALIAN GIGANTIC LILY—DORYANTHES EXCELSA.

BY DR. JOHN LOTSKY.

Although it has been my lot to behold, in their native soil and surrounded by their native sky, the finest specimens of the floral world—the cocoa groves, near Bahia, the arborescent Rexias and Melastomas of the same place, the mile-wide meadows of Epacris, Dalvinia, and Gomphalobium, in Australia—yet, taking it all in all, I think that the Australian Gigantic Lily is one of the *finest plants* in the world. In the first years of the establishment of the colony of New South Wales, it grew near Sydney, but its extreme beauty must soon have made it an object of destruction for the idle and ignorant, and we may now travel a hundred miles inland before seeing it; the more so, as it is not a gregarious, but quite a solitarily growing plant. Its very name implies that it belongs to the sixth class of Linnæus (*Hexandria Monogynia*), and the natural order of Liliaceæ of Jussieu. The best description and delineation of it has been given by Ferdinand Bauer, the companion of Robert Brown, in his "Illustrationes Floræ Novæ Hollandiæ," of which very rare work, the copy formerly existing in the British Museum, is missing. The Australian Gigantic Lily has flowered once or twice in this country, and has been described in some of the botanical journals. I shall, therefore, give rather a description of its form and splendour as it grows in its native soil. Imagine a straight stem of a Liliaceous plant, twelve to fourteen feet high, on which a number of bracteæ are disseminated. The base of this stem is surrounded by a number of fine lustrous lanceolate leaves, about two feet long. On the top of this stem appears the bunch of flowers, which, at a distance, seems as a piece of scarlet fluttering in the breeze. There were about twenty single flowers combined in this inflorescence, each of the size of the common white lily, but, to repeat, they are here of the most brilliant scarlet. In all my travels in Australia, I met only with *one* solitary flowering specimen, in the Five Islands south of Sydney. It stood on an elevation of fine alluvial soil, overshadowed by a few palms, and other semi-tropical plants. It would be impossible to dry the whole bunch of flowers for the herbarium, so I cut it into several, perhaps, twenty specimens, which became exsicated rather slow, but made fine specimens, the colours being thoroughly preserved. The Gigantic Lily has no smell, as if nature did not want to expend all merits on one single plant. I did not dig up this plant, as the tuber would have been overgrown, being that of a flowering plant, but my friend, Richard Cunningham, gave me several bulbs from the public gardens of Sydney; they were of the size of the largest Brazilian *Amaryllis*, but more elongated. As the great phytophile, Baron Ludwig, in Cape Town, wished to have some bulbs for trying them at the Cape, I forwarded some to him, but I have not heard whether they succeeded in that climate. The Australian Gigantic Lily is one of the plants which, if it could be grown in the Crystal Palace, would attract tens of thousands of visitors. Even a wax model of the inflorescence, in its natural size, would be highly interesting, and I made preparations to have one made; but as this could only be done from the splendid engravings of Ferdinand Bauer's work, missing in the British Museum library, I must yet bide my time.

Green Fly on Peaches and Nectarines.—A few days ago I found some of my peach trees in pots covered with the brown peach aphis. I at once determined to test the efficacy of Sigma's Aphis Powder; so I took my powder from the cupboard near the kitchen fire, where it has rested for some weeks, filled a large pepper castor with it, put on its perforated cover as usual, and over the cover a piece of muslin. I then gently inclined the shoots of my trees so that the under surfaces of the leaves could be got at, and dredged on the powder so as to cover the leaves and shoots with a thin coat. This was done about ten a.m.; the powder was suffered to rest on the shoots till the next morning, when the usual syringing took place, and it was cleanly washed off. Not a single aphis remained alive, and the trees operated upon have not been infected since the application. I have never yet found any aphis remedy so efficacious or so easily applied. I have no aphides on my Roses this season, but I feel tolerably confident that it will destroy them with equal facility. My powder is kept in a very dry, warm cupboard, near the fire; a few hours' exposure to damp air will nearly destroy its efficacy.—Thos. Rivers (in *Gardener's Chronicle*).

NOTES ON NEW PLANTS.

The following are introduced to the notice of readers of the "Floral World," as novelties in every way worthy of cultivation. It would be neither interesting nor profitable to our amateur readers were we to notice all the new things that are from time to time offered to the Horticultural public; many such are of interest only to botanists, or those possessing extensive collections of plants,—and subjects that come strictly within the range of amateur operations are too often none the more acceptable because new and expensive. The plants here briefly described are such as will prove useful to the possessors of even small gardens and limited facilities for plant culture. The prices are attached, to meet the expressed wishes of many of our readers. The notes will be continued from time to time, as circumstances render necessary.

LEPTODACTYLON CALIFORNICUM.

This is a most valuable addition to our lists of bedding-out plants. It belongs to the natural order, *Polemoniaceæ*, or Phlox-worts, and was first introduced by Mr. Douglas. In habit of growth it bears some resemblance to the young sprays of our own *Ulex Europeus*, the branches being covered with small bright green awl-shaped leaves, of a light, cheerful colour. The corolla is divided into five

wedge-shaped lobes, and its colour is bright rose. It was first cultivated, we believe, by the Messrs. Veitch, but it is now extensively grown by the trade, in consequence of the demand for it for bedding. It is of a very dwarf habit, and has a slight tendency to creep on the ground, and it blooms so profusely as to completely cover a bed with its brightly-tinted flowers. Its propagation is as easy as a verbena, and it requires much the same treatment to keep it through winter. Cuttings struck in sand in autumn make good plants for the decoration of houses in early spring; but, for bedding out in May or June, the cuttings should be taken from January to March. It thrives best in a compost of sandy peat with a little fibrous loam added. Damp is one of its worst enemies, and in winter it is likely to rot off, unless kept moderately dry and well aired. The heath-house is, perhaps, the best place for it at that season.—[Price 18s. per dozen.]

TORREYA GRANDIS.

This is a hardy evergreen coniferous tree, belonging to the natural order *Taxaceæ*. It was discovered by Mr. Fortune when searching for cones of the golden pine on the mountains of Chekiang in China, who sent home seeds of it in 1856. Mr. Fortune describes the specimens which he saw as being even more beautiful than the two species of Cephalotaxus, formerly introduced from China; many of them were from sixty to eighty feet high, with fine round heads and rich yew-like foliage. It is proved to be quite hardy in this country, and will soon take its place in all collections of ornamental conifers. Dr. Lindley states that he planted a specimen, last September, in a cold, low, damp place, and it now looks as healthy as when first received.—[Price 21s. per plant.]

DOUBLE CHINESE PEACHES.

Messrs. Glendinning, of Chiswick, purpose sending out, in the autumn, three Double Chinese Peaches, which were sent home from China by Mr. Fortune. Specimens were exhibited at the spring exhibition of the Horticultural Society, on the 21st and 22nd of last month, and an extra prize awarded for them. The flowers are double and produced in great profusion; some are striped like a carnation, and Dr. Lindley has named one—which was figured in the *Florist*, in October last—the Camellia-flowered Peach. For conservatory and drawing-room decoration, these peaches will be highly prized, as we understand they force well. They are also quite hardy, and bloom abundantly in the open ground.—[Price 21s. each.]

HOLCUS SACCHARATUS; OR, CHINESE SUGAR-CANE.

Though of more importance to farmers than gardeners, this huge grass will soon become a favourite with the growers of ferns and grasses, on account of its highly ornamental uses in wilderness decoration, and about rockeries and water scenes. At the

agricultural shows, last year, it excited a good deal of attention, as a fodder plant, and the bunches exhibited were much admired. In order to add it to our own collection, we have obtained a sample packet of seed, from Mr. J. W. Clarke, of Whittlesea,

Cambridgeshire, who is importing it from France, for the benefit of agriculturists generally, and who is ready to supply the seed in any quantity. The best time to sow it is the second week in May, but it may be sown as late as the middle of June, and make fine specimens by the end of July. If left to mature its growth without cutting, it forms noble tufts of strong canes, ten feet high, covered from head to foot with graceful, grass-like foliage, quite tropical in character, and surmounted by bold heads of blossom. A liberal use of guano or nitrophosphate, is advised by Mr. Clarke, who says that he cuts it three times during the year, for use in the farmstead, in the place of other green crops. [Price, 5s. per sample.]

SENECIO MIKANIÆ.

This promises to prove useful as an ornamental climber, and if so, will be valuable as an addition to the very limited class of half-hardy plants available for walls, trellises, &c. Its succulent stems are clothed with ivy-like foliage, of a shining green, with axillary corymbs of sweet-scented, yellow flowers. It is of rapid growth, and easy of preservation during winter, and will probably succeed in any soil or aspect. It was introduced from Mexico some years since, but has hitherto scarcely become known as a decorative plant. Mr. W. Thompson, of Tavern-street, Ipswich, is now sending out plants, and we believe it is in considerable demand. We are not acquainted with the plant in a flowering state, but, when our specimens bloom, we purpose to figure them in these pages. [Price 3s. each, post free.]

COME-AT-ABLE SALADS.

When my garden fails me in supplying a sallad, I turn to the hedgerows. Last spring, an army of slugs ate up my lettuces as fast as they grew—faster, indeed—and we were precious hard up for a bit of something green. One morning, when lamenting over my loss, I spied in a waste corner, a fine crop of dandelions, and I remembered once having to grow them for a family, when they were forced, and made that delicious salad, known as *Barbe de Capuchin*, which fetches a shilling a punnet in Covent Garden. So I got a lot of tiles and flower-pots, and turned them over the dandelions; the pots had their holes stopped, to keep out the light, and in ten days we had a splendid jorum of blanched stems, and, as fast as young and promising plants appeared, we clapped the pots over them, and so had delicate salads for several weeks. At other times I have used the young, delicate tops of the hedge-mustard, the young tops of forage, which taste like cucumber; and, would you think it? the sprouts of lettuce stems are capital, when chopped up with any other things of a salad nature.

Whenever you run short of materials for a sallad, take a cold potatoe, a little cold boiled cabbage, some cold haricot beans, if you have them, a slice of raw cucumber, a little small-salad, a pinch of forage, and a little mint, and with oil, &c., &c., you have all that you can desire. The delicate, sprouting tops of wallflowers, very plentiful just now, make a good addition to a salad, so do dahlia blossoms, the tops of the common nasturtium, the inside leaves of the dock, which children eat as "sorrel;" and, upon my word, the young shoots of the vine have a delicious flavour, and are very wholesome; the young sprouts of horseradish, blanched, are also very palatable. There are many other useful things, but to enumerate them would be superfluous when you have so many able writers on such subjects, and so, having named such as seem to have escaped attention, I subscribe myself,

An old Gardener.

HARDY EVERGREEN FLOWERING SHRUBS.

EMBOTHRIUM COCCINEUM.

The beautiful shrubs of the genus *Embothrium* have hitherto been cultivated in greenhouses only, being considered too tender for permanent positions out of doors; but *coccineum* having stood five successive winters quite unprotected in the open air of Devonshire, may now be classed among our hardy flowering shrubs, its preservation, during winter, in less favoured districts, requiring only such ordinary precautions as the use of a little matting or hay-bands during severe weather. The Proteads, to which Embothrium is closely related, are a large family of evergreen greenhouse shrubs, mostly from the Cape of Good Hope. They are most useful as furnishing plants for conservatories, and all of them are easy of culture in fibry loam and peat, with an admixture of charcoal and freestone in lumps, but they will not bear a lower temperature than 38 degs. in winter. *Embothrium coccineum* is, however, comparatively hardy, and further trials of it in exposed situations will doubtless prove it to be quite so, its native sites, in Terra del Fuego and the Straits of Magellan, having much in common with our own climate, both as to latitude and seasonal changes. It was introduced to this country by Messrs, Veitch, of Exeter, through their collector, Mr. William Lobb. In habit it is all that can be desired for an effective out-door evergreen, and would be in every way worthy of a good place in a collection of shrubs, were it not also a most profuse bloomer, the plant bearing, during the summer, numerous bold racemes of a dazzling scarlet colour. When Messrs. Veitch exhibited it at one of the garden meetings of the Horticultural Society, it created no little sensation, both for its novelty as a flowering shrub, and the beautiful manner in which the specimen was grown and flowered. It then took a prize,

and on two occasions it has also been deemed worthy of a similar distinction at the Crystal Palace.

The three species of Embothrium most worthy of attention, are, *coccineum*, here figured, *lanceolatum*, and *strobilinum*. The two last-named are scarcely hardy; we have never known them to bear, without injury, a lower winter temperature than 33 degs., and 40 degs. may be taken to be the safest average minimum. The soil which suits them best, is a mixture of half peat, half fibrous loam, and a very little sand. They may be propagated by cuttings of the ripe wood, under a hand-glass, in a mixture of peat and sand, equal parts. For conservatory and cool greenhouse culture, the Proteads are much prized, and there are many interesting particulars in their structure and habit of growth, that add to the pleasure derived from their beauty.

"PEGGING DOWN."

Various people use various sorts of materials for this purpose. I have seen many persons employ fern stems, by cutting them off close to a joint, and leaving a small crook at the end to hold down the pegged plant. It answers very well, and is plentiful enough everywhere. It should be cut and prepared when green, else it will not be found stiff enough for the purpose. The only objection to it is, that the tops of the pegs show above those plants which do not throw out plenty of leaves to hide them.

Now, there is a material much better than the fern, or anything else that I know of for the purpose of pegging down; and that is, one of the shrubs which Mr. Hibberd, in his very interesting article on a "Plan of a Town Garden," in the February number of the "Floral World," recommends to be grubbed up and burnt, namely, the snowberry. Every green twig of that shrub may be brought in for pegging. By cutting them the length required, and giving them a twist in the middle they are fit for use. They will be found to answer the purpose admirably, as they are tough, neat, and durable. They may be prepared in quantities in the winter, tied up in little bundles, and put away until wanted. Should they be too dry when about to be used, an hour or two's ducking will reduce them to working order.

Wells. M. Westcott.

[Mr. Hibberd only spoke of destroying those he had to deal with, he did not *recommend* the destruction of Snowberries.]

CULTURE OF ROSES.

To grow roses well you must have shelter from cutting east winds, and if the position is not sheltered it must be made so by means of a wall, a fence of yew, borders of evergreens, or some other plan that will enhance rather than mar the beauty of the scene. There must be good drainage to carry off excess of moisture. My own way of growing roses in borders, is to take out the soil three feet deep, then lay down a foot of brick rubbish, then two feet of strong loam, into which an abundance of well-rotted sweet dung has been worked. If the space covered by roses is too extensive for this plan, drainage must be secured by means of drain pipes, if the soil itself does not serve as a natural filter. In any case the soil must be rich, but none of the old-fashioned exciting composts of bullocks' blood, new pig's dung, or such killing stuff, must be used. Then, in planting, let them go to their final quarters from the middle of October to the middle of November, being first shortened in, and, if possible, none should be used, especially of worked standards, that have been grown to any size in pots. Once a year dress the roots with a new supply of rotted dung. During dry weather, when roses are in bloom, they must have plenty of water, not cold and hard from a well, but tepid through exposure to the sun, and occasionally strengthened by the admixture of a little guano. Whatever insects appear water is the remedy; it must be played over them from an engine, and continued till all the pests disappear. Pruning must be performed in March, but not severely unless special circumstances require it, for there is scarcely any rose that will bear close cutting with impunity. With such management you may insure roses in abundance, whether you live in the north or south, the main requisites being liberality of food and water, moderate shelter, good exposure to the south, and the roots to be disturbed as little as possible.—*Rustic Adornments for Homes of Taste.*

ABOUT IVY.

BY SHIRLEY HIBBERD.

When "common things" come to be regular objects of study, there may be some hope that justice will be done to the subject of Ivy, which is a very common thing indeed, but one about which people trouble themselves very little; so little, that though it is used everywhere, is everywhere admired for its wealth of glossy green, and its peculiar value in shutting out a "back view of the premises," yet you will not find one grower of plants, or even collector of plants, in a thousand, who troubles himself about its species and varieties, or who ever puts in a row of cuttings for the benefit of his own walls and fences at a future day. There is an old tottering fence, perhaps, which ivy, of nobody knows how many years' growth, has weighed out of the perpendicular. This year it is shored up; next year it is worse for the shoring, worse from increased decrepitude, and in its old age it has to bear an extra weight of ivy; for when the "ivy green" began to form huge bolls of blossoming stems, nobody had the courage to cut it in order to relieve the fence, so that at last ivy, fence, and shoring, are carried away by a gale, on a dark howling night in March, and the proprietor, with a woe-begone and elongated countenance, at last makes up his mind to clear all away, and put up a new fence. Then to cover it with ivy is found no easy matter; the carpenters have torn up and destroyed all the old roots, and where once there was a rich green wall, venerable for its age, and at all seasons delightful for its luxuriance, there is now a stiff, straight line of barren timber, shining with new tar, and giving the place much more the appearance of a rope walk than a garden.

The case here put is just the one your humble servant has to deal with this spring, except that he had no share in the slow ruin and ultimate fall of two hundred and fifty feet of ivied fence, but a most important part in the determination to remove it, construct another, and then feel the difficulty of getting it covered as quickly as possible, for a sharp boundary line of tarred paling does stand very much in the way of a development of the picturesque.

If this were my first transaction with ivy I might stare with horror, as my friends do, when they remember how the ivy toppled over and rioted on the wooden ruin when I came into possession, and compare with the past the present glistening line, against which is my border for plants that love the shade. Well, used to it or not, Rome was not built in a day, and 250 feet of ivy cannot be raised in a month or two; not, at least, to the extent of forming a screen of from five to twenty-five feet high, which are the vertical measurements of the spaces to be covered. But to get ivy, and that in any quantity, and to get it to run quick, is just as easy as growing scarlet runners. There is the difference of time only, and ivy will not run, like kidney beans, twenty or more feet in a season. Let us, however, deal with the subject systematically, and come to the fence when its turn arrives.

The "Ivy Green," as Charles Dickens calls it in his famous song, if neglected by students of botany and horticulture, has not been neglected by the poets. As for the classic writers, they delighted in wreathing every ode, and many an incident in drama and romance, with its artistic greenery. It was, you will remember, especially dear to Bacchus, and the old Greeks wore chaplets of it in honour of the god whom the Romans degraded from his original dignity, as a father of agriculture, to that of a raving drunkard. The Greeks reduced him one step, for in the Egyptian mythology they found him identified with Apollo, or the Sun. Doubtless he was but the sun personified originally; then, as the cause of the "year's glory and fatness," the vine, a fruit of the sun, was dedicated to his honour; and at last he became so identified with the vine and its potent juice that his sunship was forgotten, and he was made to join hands with Silenus, for the sanction of riot and debauchery. Nonnus, in his forty-

first book, traces him to Chus, and describes him coming to Libanus, and there planting the vine; and out of that circumstance arose the association of the grape and the god. But though the Romans brought him down to their own level, their poets were not ignorant of his true history, for Virgil (Georgic I. 6) assigns to him the conduct of the year, and joins him with Ceres, calling

them both the bright luminaries of the world—

"'Bacchus, and fostering Ceres, powers divine!
Who gave us corn for meat, for water wine."

Now, the ivy common in Greece has golden berries, and these were convenient decorations for the places in which Bacchic feats were celebrated, and everything of a wild, luxuriant, defiant character came to be associated with Bacchus in one way or another. Thus Euripides, in "Helena," makes the second Antistrophe (1476) address Helena as having neglected to pay due honours to the "powers divine," for, "—— with the ivy twine, green wreathing round the Thyrsus drest," and "streaming to the winds the Bacchic hair," she had yielded to her own vanity, instead of bowing at the shrine of Ceres. Indeed, the old Greeks twined the ivy about most of their fancies, and the Romans garlanded their heads and their cups with it, while they steeped myrtle-boughs in the wine to give it an aromatic flavour. To follow this out would just require one to occupy the whole of this number of the "Floral World;" but let me beg you to call to mind how Shakspere uses it as an emblem of constancy:—

"The female ivy so
Enrings the barky fingers of the elm."

E. HAYHURST, Sc.

This passage points to one of the emblematic uses of the ivy in modern literature, and it also indicates how accurate an observer of nature was the great poet. The device of an ivy leaf with the words, "I die where I am attached," has often been used as the symbol of a faithful friendship; and in the north of Europe ivy chaplets are used as *memento mori*, its attachment to ruins, and its evergreen character, rendering it a suitable representative of the Present clinging to the relics of the Past. When the late Bishop of Norwich died, Jenny Lind, who was his personal friend, sent a chaplet of ivy to be placed on his tomb, as "her tears," in accordance with a pretty custom of her native land.

The Ivy, *Hedera*, takes its name from the Celtic *hedra*, a word in allusion to its tight-clinging stems; and in the natural system it is classed in *Araliaceæ*, or ivy-worts, in which the aralias of our gardens have a conspicious position. There are half-a-dozen British varieties of ivy, namely, the common *helix*, the tree-like *arborescens*, the finger-leaved *digitata*, the silver-leaved *foliis variegata*, the gold striped *foliis aureis*, and *vulgaris*, the common green. In the diagram, the third in size, is a leaf of the common helix, but it varies much in the shape of its leaves, and the many pretty varieties we have are sports. The largest of the outlines is the well-known Irish ivy, for a full-grown leaf of which it would be necessary to devote two whole pages. When I took the shears to clip off a few leaves for a sketch, I found plenty just double the size of the one here traced, and was compelled, on account of the size of our pages, to content myself with a very common-place specimen. It is a decided Bull to call this Irish, for it is a native of the Canary Islands, introduced, probably, first to Ireland, subsequently to Britain. Among the hardy kinds there is only one other worth special notice, and that is *H. taurica*, introduced here in 1841, but never generally cultivated. The greenhouse evergreen and stove species scarcely concern us at present; they require consideration on their own merits, apart altogether from the species and varieties used in gardens.

Now, touching "common things," let me commend to the artist the diversity of elegant forms noticeable in ivy leaves, and especially of the delicately-veined, sharp-toothed little leaves that beset the straight young stems of British ivy, that dart upwards like arrows on the boles of old elm and oak trees, but more frequently on the elm than any other tree, as subjects for the exercise of the pencil. Then let me call the artist's attention to a point which the botanist knows all about, or he is no botanist, that when the ivy is left alone for three years, it forms blooming stems, and from the point where these break on the bowery poll which ivy forms when untouched by knife or shears, the leaves gradually change from being divided into five lobes, and become entire and neatly ovate and shining, and it is this forming of a head and production of numerous umbel-bearing flower-stems with uncut leaves, that ivy, left to itself, owes its bold rounded outlines and massiveness of character. Among all the beauties of autumn, I know of none to beat a fine sheet of ivy in full bloom; though the blossom is pale green and unattractive in itself, when a vast breadth of it is covered, the dark foliage seems dashed all over with foam, and the hum of a thousand bees, and its own sweet fragrance quite compensate for the absence of specific colour. A venerable old parish church seems, indeed, a sanctuary, and its green graveyard may be called God's acre, when the good wardens are tender with the ivy; but would you believe it, not many years ago, an archdeacon sent a circular of inquiries to the churchwardens within his deaconry, and among the leading questions in it was this, "Is there any ivy growing on the walls of the church?" the object being to see if there were any need for a further issue of orders to destroy it.

This suggests a horticultural query —Does ivy destroy the wall to which it clings? No; it does not; it neither destroys it nor renders it damp, but is an actual preservative, and, besides that, it affords resting-places for birds, and, in its berries, supplies the thrush with a diet in which he revels all the winter long. To that question of the

archdeacon, a churchwarden replied, that nothing so effectually keeps a building dry as ivy; for, after the heaviest rain, the wall to which it adheres will be found quite dry, the leaves acting as a weather-board or vertical tiling, to throw every drop of rain away from it. Its exuberant and web-like roots," he said, "bind everything together with which they come in contact, with such a firm and intricate lace-work, that not a single stone can be removed from its position without first tearing away its protecting safeguard." This holding of the old fabric together may be of further importance in the case of venerable old churches, on which *restorers* have cast their Vandalic and Iconoclastic eyes—perhaps, the warden had such in view, when he laid stress on the conservative principles of his favourite evergreen. In proof of his statements, he refers to ruins of castles and abbeys, "for while in those parts of the structure that have not had the advantage of this protection, all has gone to utter decay, where the ivy has thrown its preserving mantle, everything is comparatively perfect and fresh, and, oftentimes, the very angles of old sculptured stones are found to be almost as sharp and entire as when they first came from the mason's yard!"

If I thought it necessary to say anything further with a view to the utter explosion of the absurd notion, that ivy causes damp when attached to buildings, I could heap up evidence from noted architects, experienced builders, and horticulturists innumerable, but there is no such need; it is a protector, not a destroyer, and, for many other reasons besides its beauty, is worthy of the universal admiration accorded it.

To cover a wall with ivy, however, is not the work of a day or even a season. When well established in a position it likes, it makes long joints every year, but it is most tardy at first, and, until the second year, makes but little growth. This is the reason why, at the nurseries, the price of ivy always appears exorbitant. It can't be helped; you must pay for the time it takes to grow a plant, even if the nurseryman gets his cuttings for nothing, and, if you purpose raising ivy for your own use, you must exercise patience. Ivy comes from seeds freely, but by cuttings we get sizeable plants much quicker. Among a batch of seedlings there will often occur one or two with novel markings sufficiently distinct to constitute a variety, and as varieties are highly prized, the hope of obtaining a sport should lead those who have the opportunity, to raise a few every year from seed. It is not long since, a correspondent wrote to say he found great difficulty in getting ivy to strike. The truth is, that it takes its time about it, but it is pretty sure to make root some day or other, whether you put in ripe hard stems or young shoots, and it will root, too, in the sun, in the shade, in sand, loam, peat, and clay, almost indifferently. But the proper way to get a stock of ivy is, to prepare a piece of ground on a north border expressly for the purpose. It ought to be sandy, quite shaded, and moist. That it should root quickly, in such a spot, you might expect, because it holds faster to a north wall than it does to a south one, and the little teeth with which it bites the wall are nothing else than incipient roots, which can make no further progress in the hard material, and so become hardened in it. But about the end of April, and from that to the middle of June, gently draw from a wall a young shoot that has not quite got hold, and you will find the teeth to be in a tender root-like state, and if the shoot is removed, and the joint that has the longest bunch of white teeth attached to it, is carefully planted and kept moist and steady, it will make a good plant that season, owing to the roots having been thrown out before it was planted. This is, perhaps, the quickest way of getting plants, but it cannot be practised to any great extent, because people cannot afford to strip every young shoot from a wall for the purpose of turning to account the incipient roots with which they are furnished. But if you wanted a dozen pot plants of ivy to grow over a wire umbrella, or for any such special purpose, that would be the way to get them. Take off the young shoot at a point well furnished with soft white teeth—you must not break or injure one of them in detaching it—put a little drainage

in a sixty pot, then fill up with loam, leaf-mould, and a little old dung—in fact, use a little of your balsam compost; then, next the side of the pot, thrust in a short stick, of half-inch thickness, to make a firm hole. Insert the cutting, with its roots unbroken, and fill the hole up with silver sand, so that the cutting remains planted next the side of the pot in pure silver sand, with roots already formed, and with a rich soil to work into the moment it begins to move. A cold frame, or a spent hot-bed, or even a gentle bottom heat in the coolest part of a cucumber bed, would suit it, and every one so treated might be shifted into a forty-eight by the end of the summer; and the training from that time would begin; the first point being to get a straight stem, then to stop it to cause a head to grow, and then to make the most of the next growth to cover the wire design.

The next best way would be to cut up these partially-rooted young shoots into three or four inch lengths; to cut away all but the two or three leaves at the top of each, and plant them pretty close together all round the sides of five-inch pots; the bottom of each cutting to touch the crocks used for drainage, and the pots to be filled up with loam, leaf-mould, and sand, and a little extra sand next the cuttings. If taken early, they will do all the better for a little bottom heat, or they might be plunged in a cold frame or in a bed of coal ashes, on a north border, and kept moderately moist and well shaded, and, if potted *firm*, you would not lose one. To make good plants of them, they ought to be potted into sixties as soon as they had made a few good breaks, again shaded and encouraged to grow during the whole of the autumn, and the best place to winter them would be a cold frame, in which they would start early in spring, and after the middle of April they should have liberal culture, shifts as required, and full exposure.

A still easier but slower method is to strike them in the open ground. Prepare a sandy border in a shady place, slip off as many as you want, and the best for this purpose are the shoots of the preceding year; old, hard wood does not root so quickly, but young shoots of the season will do. Cut them four or five inches long, trim away the lower leaves, but leave the stump of each leaf stalk as you do in the case of other cuttings. Dibble them in in rows six inches apart, and the slips four inches asunder, in the rows. Give water in dry weather, and let them grow as they like till the next spring, and at the end of April, or first week in May, they may be planted where you want them.

The next point is to get ivy to grow; and here a very common mistake occurs. People see ivy rioting in luxuriance, in places so shaded that nothing else would grow there, and often in the very poorest soil; and hence coming to the conclusion that ivy "will grow in any soil or situation," it gets the worst of treatment, and folks wonder how it is that such a hardy, vigorous thing should disappoint them when they want to form a screen in some particular position. The fact is, whenever you see a vast growth of luxuriant ivy, you must conclude that it is the growth of years, and that it has sent its roots into something better than a hungry sand; and if you want ivy to look as ivy ought to look, you must treat it liberally, and give it proper attention. Under the notion of its growing in spite of circumstances, roots are planted against walls that are involved in almost perpetual twilight by the shade of tall trees, and the planting consists in opening holes with a trowel, and sticking in the roots where they are to remain; and, after that, such growth as it makes is nailed in, or left to train itself, and much surprise is expressed at its doing badly year after year, and, perhaps, never in a life time covering the wall, as it is wished to do. The fact is, ivy, like most other things, likes a generous soil, and where it is wanted to run quick, and make a substantial screen, the soil should be trenched in the winter, and left rough for the frost to act upon it. During dry weather, in March, a liberal dressing of half-rotted dung should be dug in; in April, or early in May, the ivy should be planted; through the summer its growth should be nailed in, if it does

not train itself regularly; and in dry weather it should have plenty of water, varied now and then with a dose of liquid manure, and the next spring the whole of it should be cut over to within two inches of the surface of the ground. It will immediately start afresh, grow rampantly, train itself, and do all you desire, provided it really has some fair amount of daylight, and from that time forth need very little further attention. But it is a good plan to trim it in every spring, so as to leave only one regular thickness of stem over the whole surface, and the top should be cut in a straight line, so as to shorten in all the joints to one uniform height. This treatment will make the next growth still more rapid, and after that you may let it mount as it likes, over chimneys, buttresses, and to form round blooming heads, or keep it close and regular with the knife, according to the nature of the position it is in, and your own taste regarding it.

I shall treat my 250 feet of fence in this way: In the higher portions, where we want a screen fifty feet high, I have planted Virginian creeper to mix with it, for there is nothing among the colours of autumn more beautiful than the bright, ruddy foliage of *Ampelopsis*, mixed with the rich, dark green of Irish ivy.

The same course of treatment should be adopted, whatever use ivy is put to. On a high, square cottage wall, where all must be neat and orderly, the English ivy is almost preferable to the Irish, on account of the beautiful veining of its leaves, and the close, regular manner in which it bites the surface. Kept to one layer of stems—that is, no second stem being allowed to run over the one that holds to the wall, and not a single piece allowed anywhere out of the perpendicular—and cut to a straight line at top every year, a breadth of the common British ivy is extremely beautiful, and where a vine or honeysuckle is carried on a single stem up to the higher portions of the wall, and trained right and left, the small-leaved British ivy makes a beautiful covering to run as high as the lowest rods of the vine, and may be kept to that line by the use of the knife, every spring. The way to cut it when so grown, is to lay a straight edge where the top line is to be, and with a sharp knife, cut a clean, horizontal line from left to right, across the brickwork. To clip it bit by bit, would loosen the stems from the wall, make the line irregular, and be a waste of time into the bargain.

The uses to which ivy may be put are almost endless. It makes a beautiful surfacing for rough shrubberies and wilderness walks, and, especially, if the ground is broken. Dark, shady banks, and rising knolls show its beauty to perfection, and in places where but little else would grow, the ground may be covered with it, and a green carpet formed, that will be beautiful in every season of the year. In gardens, the use of it on mounds and knolls is a great help in the production of picturesque effects, whether among root and rock-work, about water or rustic shedding, or even in the neigbourhood of bright flower-beds and borders. In such places it always needs to be on elevations to tell with effect, and then its dark green forms a background of repose to the brightest flowers. Seldom in my life have I been without good ivy mounds, but my present garden is horribly flat and tame to the eye, and our improvements will not be completed till we have a few bold knolls to relieve the monotony. The thing is easy enough, a bottom of brick rubbish, a few loads of loam, a surfacing of flints or burrs, and then well-rooted ivies planted between them. Shrubs and trees, such as aucubas, arbutus, Portugal laurel, holly, double flowering gorse, Portugal and Spanish broom, the "lady birch," the sweet bay, &c., to crown the higher parts, and form a background, would complete a picture which might be a feature distinct in itself, or used as a mode of "planting out" an unsightly prospect. Even in a little town garden, the grimy walls may always be hidden by such a contrivance: a mere bank thrown up at the farther end, faced with burrs, and planted here and there with showy alpines, such as yellow alyssum, dark flowering thrift, white and yellow stonecrop, &c., and ivy to run all over it, and drop over to the path, the wall also to be covered with *chimonanthus*, white

jasmine, Irish ivy, Stauntonia, and any other close-growing climber, but not, of course, with such things as vines or roses, unless the circumstances rendered them peculiarly suitable.

For fancy work, such as covering the lower parts of walls, on which such things as honey-suckles and pyruses are trained, all variegated varieties are admirably suited, as they are also to mix with French or British ivy, when the stump of a dead tree is made into an ornament on a lawn. These kinds do best when inarched on the Irish ivy, as they grow rather weakly on their own roots, and when so inarched they run over a wall or over stone-work almost as freely as the commoner kinds. I have but three kinds of choice ivy in my collection. One is *Hedera Regneriana*, represented lying immediately on the large leaf of Irish ivy. This is a large-leaved and luxuriant sort, and well adapted for walls, tree-stumps, and such work. It is a rampant grower, the leaves less deeply notched than other kinds, and of a cheerful rich green. Most of the nurseries keep this sort, and I recommend it to those about to plant ivy, as a kind most desirable for any of the purposes to which it may be put. Another is the common *H. arborea variegata*, on the right of the diagram, the leaves of which are delicately margined and blotched with white, a very showy thing, and a free grower. Of this there are several good sorts in cultivation; one, called Vesta, is still more white, like well-bleached parchment, and, when grown in a suspended basket, has a most charming appearance. The only remaining fancy variety in my possession is *H. V. Cullisii*, of which the smallest leaf in the engraving is a copy. This is admirable for suspension, and for parasol trellises, and is so distinct that it may be grown so as to mix with other fancy kinds; the markings are delicate white, cream, and blush crimson, very regularly disposed, and the leaves of a neat outline, varying but little all over the plant. A soil composed of one part peat, one part leaf-mould, one part yellow loam, and one part sand, is the best for all these choice kinds, which are as worthy of attention as any of our most prized conservative and greenhouse plants. The fancy varieties are much liked by ladies, who, when they take to gardening in earnest, are sure to look out for all sorts of delicate trailing and climbing plants. Now, ivies are in every way suited for such artistic effects as they delight in, and the variegated kinds are exquisitely coloured. As sports often occur spontaneously, a shoot on which the leaves have any novel markings, should be layered or cut, and struck, to keep it as a separate thing, as soon as it has made sufficient growth to show its character, and afford half-ripened wood for striking.

SUBURBAN GARDENING.

THE FLORAL PYRAMID.

This is especially adapted for the centre of a plot of grass, and if planted as described below, will remain a brilliant and striking object during the whole of the season. The present is the time for its construction, which will furnish amusing occupation to the amateur, and at last will repay his exertions.

Having fixed on the most suitable position for the centre of the pyramid, drive in a stake. From this point describe a circle of six feet in diameter, from the inside of which the turf must be removed; then split about sixty 2-inch straight faggot sticks, each 2 feet 6 inches in length. Purchase a barrowful of "waste slates," from the slater's yard—these will be found to vary in width from 4 to 5 inches, and in length from 8 to 9 inches, and cost altogether about six shillings.

Commence by driving in firmly a circle of stakes, ten inches from the circle already marked out, their rounded edges being outwards, so that each faggot penetrates about two feet in the soil, and the spaces between are a little less than the width of the slates used.

Now fix the slates in position between the faggots, with overlapping joints, each slate being imbedded to a depth of two inches in

the ground. Proper soil can now be filled in up to the level of the slate edging. Another ring of faggots and slates is then fixed nine inches inside the outer, and *filled with earth as before*, and yet another eight inches nearer the centre.

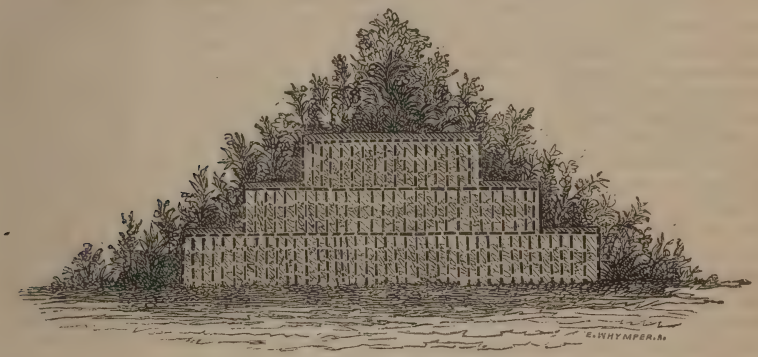
This upper, and final bed will be found to be eighteen inches in diameter, and eighteen inches above the level of the lawn.

About seventy slates will be required for the work ; for the bottom tier about seventy split faggots, the middle thirty, and the upper twenty.

The verbenas are planted at the extreme edge, to be trained downwards, or to fill any gap between the geraniums.

Some readers may think this arrangement rather artificial, but when covered with foliage and blossom, as it will be through all the summer months, the general effect will be quite rustic enough for a suburban garden, from which a view of some sort of architecture is generally obtainable. And, indeed, in the South American forests, where none but

He "Who spake and it was done,"



SECTIONAL ELEVATION.

[*The Constructional Lines are dotted. Scale half-an-inch to a Foot.*]

We have just planted one of these in the following manner:—

Top.	Centre, 1 large Tom Thumb (Scarlet Geranium) .	4	
	3 small		
Tier 1.	Prince Albert (Scarlet Geranium)	11	
	André Verbena (Blue) .	13	
Tier 2.	Tom Thumb	17	
	Ariosto Verbena (Mulberry)	19	
Edge.	Prince Albert (Large) .	18	
	Variegated Mint . . .	30	
		112	

has had any ordering of the wild luxuriance and beautiful irregularity of the enchanting scenery, the writer has seen natural floral pyramids, very similar in effect to the one above described.

We already have cheap return-tickets to Brazil, so no doubt, ere long, public attention will be drawn to that magnificent country. In whatever portion of the globe we may travel, we shall always find evidences of a God of love. What a happy thought, that He who created this lovely universe, should invite us sinners to dwell with Him for ever, in a *far more glorious* world, after death!

JUNE WORK IN THE GARDEN AND GREENHOUSE.

Not till the 19th of May did we enjoy, in London, such an elevation of temperature as warranted the committal to the ground of bedding-stock. In many places we saw the beds stocked before the 12th, and could only regret, that the plants which had been so well nursed for months, and, at last, brought into luxuriant growth and abundant bloom, should be so harshly dealt

with for the sake of gaining a few days in time. Not that days are gained. One night of cold rain, or a few days of sharp east wind would so check them, that by the first week of June they would be less forward than plants only just turned out of their pots, and which, if fully exposed at first, would not suffer the least check. With more delicate subjects it is prudent even yet to wait a little, and the middle of June may be considered the earliest time at which it is safe to put out any plants that are a degree more tender than the generality of bedding-stock. No time, however, should be lost in securing whatever plants may be required for furnishing trellises, against which new plants are being trained, and while these plants will, perhaps, not cover them for years, a few cobeas, or other fast-running twiners, should be provided to cover the bare spaces. Suspended plants are now much in fashion, and if the selection be judicious, ornamented pots and baskets filled with pendant vegetation, have a peculiarly graceful appearance. The more delicate of the Tropœolums, Rhodochiton, minor convolvulus, *Senecio Mikanœ*, Hibbertias, especially *grossularefoliæ*, and ferns of pendant habit, are particularly suitable for these purposes. Even the common English ivy, the pretty ivy-leaved toad flax, and annuals of slender habit, make pretty baskets, and if regularly turned round, where they receive light on one side only, such examples of ærial gardening are sure to gratify.

Kitchen Garden.—The ground will be now, for the most part, covered, and everything in full growth. The hoe must never be idle; weeds grow faster than the crops, and exhaust the soil rapidly, and, if allowed to seed, make the mischief worse. Next to keeping down weeds, the most important operation is that of watering. Plants lately put out should not be drenched to excess, or the chill will check them more than a drought would, and it is better to trust to moderate watering and shade combined, than to keep the soil soddened about plants that have barely taken root. Cucumbers, gourds, tomatoes, and capsicums may be put out; the soil should be rich; and, for tomatoes, a sunny aspect must be chosen. Manure-water should be freely used to all crops in full growth, and especially to strawberries, but there should be two or three waterings with plain water to one with liquid manure. Sow beet, early horn carrots, scarlet runners, and French beans, turnips, lettuces, radishes, cabbages, spinnach, endive, cauliflower, and peas and beans. All salad plants should have a shady position, or they may run to seed. In sowing peas and beans, it is best to depend on the earliest sorts, at this time of year, as they are soon off the ground, but Knight's marrow and Bedman's imperial are good peas to sow now for late supply. Dress asparagus and seakale beds, with one pound of salt to every square yard, and give asparagus beds strong dozes of liquid manure from horse-dung.

Flower Garden.—Newly-made lawns require a little special care at this season. If the grass is thin it must not be mown and swept in the usual way, for the roots of young grass suffer from the effects of a hot sun when there is not a close bottom to preserve moisture. It is a good plan to mow early, and leave the mowings till the evening, then sweep and clear up, and the grass will have twenty-four hours from the morning before the sun comes on it again, or, reckoning from the day before the mowing, thirty-six hours, which will materially assist in promoting a thickening of the bottom. Where walks look dingy, a turning with a fork and a good rolling is often as effectual a reviver as a supply of new gravel, but if the old gravel is of trifling depth or a bad colour, a new coating will complete the beauty of the garden, and give it a necessary finish. Carnations, picotees, and pinks may now be propagated by pipings on the north side of a fence, or in pots, half filled with sandy loam. The old plan of striking them in heat and in exciting composts is quite exploded as a fallacy. Ranunculuses will want water frequently; they cannot endure drought, and beds of valuable kinds must be placed in the same way as tulips, with netting or canvas. Pansies strike readily from short side shoots; the old hollow stems will strike also, but never make good plants; the new growth is that to be depended on. Dahlias not staked should be attended to forthwith; indeed, the stakes should be put in at the time of planting, so as to avoid damage to the roots when they have begun to grow. Perennials should be sown for next season's blooming, so as to get strong plants. Sow thin in nursery-beds, and prick out the plants in rows as soon as they make rough leaves. If left crowded together they grow splindled, and never make strong plants.

Greenhouse.—To prolong the beauty of

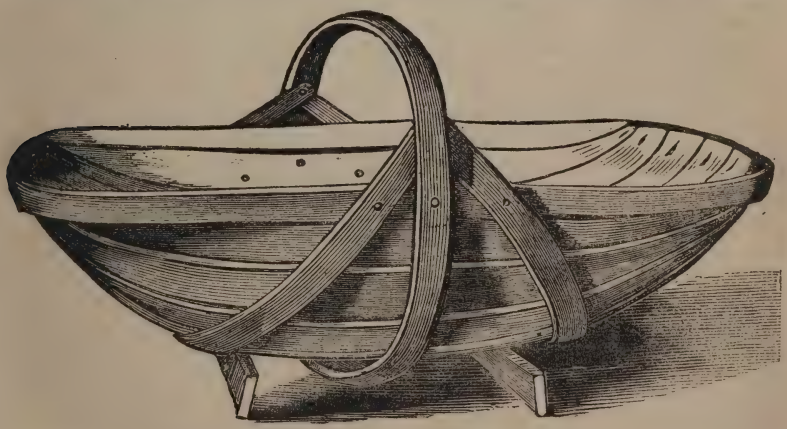
the plants in flower, put up a shading of tiffany or Haythorn's hexagon net; the latter will also be useful to exclude bees and wasps, for flowers on which bees have settled perish sooner than those they have no access to, owing to their disturbing the pollen, and causing a formation of seed-pods. A method of prolonging the bloom of flowers, and, in the opinion of some, increasing their beauty, is, to get some dissolved gum arabic, and a camel's hair-brush. The brush is dipped in, and the centre of every flower touched with the gum, where it forms a bright bead, and prevents the distribution of the pollen. Of course, the flowers should be touched soon after they open, or nature may have accomplished her end before the preventive is brought into operation. It is important to keep the first blooms on specimen azaleas, pelargoniums, &c., in this way, so as to get the whole plant covered by the time the later blossoms open. Pelargoniums done blooming should be cut in and allowed to break before repotting. They should be kept rather dry, so as to break slowly, and when potted into small pots, put in a cold frame, and kept close, till they begin to make fresh root, when they must have plenty of light and air. Cinerarias done blooming, may be propagated by side shoots and suckers; if the plants are turned out on a border, and heaped round the collar with sandy loam, they will throw out suckers which may afterwards be slipped off with a portion of root attached. The time is now arriving for clearing out the house, and giving it any necessary clearing and repairs, and cold frames should be provided in good time to receive those plants that are not to be turned out of their pots for the summer.

STOVE.— Liberal waterings must now be given, and abundance of air, especially among hard-wooded plants. Pines, same treatment as last month. New Holland plants should be encouraged to grow, and liberal shifts given as required.

HER MAJESTY'S FRUIT BASKET.

THERE is always one trouble on dear Belinda's mind, when she determines to sally forth in quest of strawberries or wall-flowers—she has nothing thoroughly appropriate in which to place them. To carry a plate or a dish is ugly; to put them in her pretty apron only huddles them up and spoils them, and after all, "a lapful" is not a lady-like quantity.

Then why not follow the example of Her Gracious Majesty, and have a basket of snow-white wood, elegantly braced with bands of the same material, mounted on cross pieces to serve as feet, so that you can put it down on grass or gravel, without fear of wetting or soiling it, and beautified all over with sparkling, silver-headed nails. Here it is, in rough outline, as made for the Queen, by Messrs. Gidney, of East Dereham, Norfolk, and since adopted by many of the flowers of the fashionable world, as a proper accompaniment in a ramble through the shrubberies and fruit rows. You may have them of any size, and at any price, from a shilling to half a sovereign, and they are known as Gidney's Truck Baskets.



TO CORRESPONDENTS.

DADDY LONGLEGS. — *W. G., King's Lynn.* — Naturalists say that every animal has its part to perform for the service of man. Gardeners generally look only at one side of natural history, that is, at the manner in which plants are dealt with by animals; and hence they would agree for the extinction of many of the insect tribes, were extinction possible. Who knows but in God's providence the very pests of the garden may serve a good purpose to the gardener, for is not the human character educated by difficulty more than by ease. Be that as it may, Daddy Longlegs is a pest to be dreaded, and, perhaps, never till this present spring were such evidences of its ravaging power made manifest. There are several species of Daddy Longlegs, or Crane Fly, but the most annoying is *Tipula oleracea*, the great crane fly of gardens. The little gnats that dance in companies under trees, and make that pretty summer droning, called the "music of the wild," are close relatives, but they do no harm to vegetation, because their larvæ inhabit ponds and ditches; but the larvæ of this gnat is a dark fellow, with little stumps for legs, and a tough leather jacket of such impenetrability, that he might be called the insect rhinoceros. These grubs glory in a good turf, which, if left alone, they speedily destroy, by nibbling away the roots. In the kitchen-garden they feast on the roots of potatoes, scarlet beans, cauliflowers, lettuce, and, in most cases, where a well-doing plant suddenly drops off without any apparent cause, an examination of the root would show that these leather-jackets had there been working for its ruin. The London parks have, this season, been so infested by them —the produce of eggs laid last year—that in many places the grass is almost destroyed, and the Board of Works put to its wit's-end for a remedy. Dr. Lindley called attention to the subject in the *Chronicle*, and in the number for the 8th of May a column-and-a-half of answers appeared from various correspondents. Amongst these, the most practical remedies proposed are the following:—Mr. Cuthill says: Roll the grass, *at night*, with a two ton roller, with a thorn scrubber behind, well loaded. They are then feeding, and may be crushed by thousands. Mr. Glegg recommends a mixture of one ounce of corrosive sublimate, dissolved in half-a-pint of muriatic acid, and then added to 60 gallons of water; the ground to be well saturated. Another says, use ammonia-water from the gas-works; and a very practical man avers that the only certain method is to employ a regiment of children, armed with tableforks, to set to work at dawn, and the work of the children to be finished by labourers with Parkes's forks. The old remedies are dressings of quicklime, to be laid on the surface at night, and a mixture of lime and gas-water distributed by a watering-pot. Salt has little effect on their tough skins; simple lime-water will not kill; the pressure of the foot, even when armed with hob-nails, will not always crush them. In the case of W. G., the havoc among his kitchen crops is owing to having made up the soil with old turf, in which, last autumn, the crane flies had laid abundance of eggs. We have ourselves suffered much this spring from their abundance in a piece of old ground which has been neglected for years; every spade of earth brings up a few, and we have trusted to hand-picking, rather than use mixtures which might do more injury than the grubs.

BALCONY IN THE CITY.—*T. H.* wishes to know how to make a city balcony very flowery all the summer at little expense; it is surrounded by an iron lattice, and might be arched over with twiners, &c. We should advise *T. H.* to procure at once, Cobea scandens, Lophospermum scandens, Maurandya Barclayana, and Tropœolum Canariensis, one plant of each in pots; or, if the lattice is narrow, one on each side might be enough, and then we should have the two first named. To make a gay show on the lower part of the balcony, a box might be planted with a row of Lobelia ramosoides in front, with scarlet geraniums behind. If the size and position of the balcony are such as to require large geraniums, then Queen, Commander, or Reidii would be best; if dwarf sorts would be most suitable, nothing better than Tom Thumb. A row of Defiance, or Brilliant de Vaise Verbena for the front, backed with a row of Delphinium formosum, would be very gay and lasting, but the blooms of the Delphinium would have to be cut away as fast as they got a little shabby to keep the plants throwing up a succession. If the pot-plants were plunged in soil or moss, it would the better enable them to resist the exhausting heat of the sun in such a position, and the tray or box for the other plants should be six inches deep, with a little chopped moss at the bottom, and filled up with loam and leaf-mould. In dry weather, the whole of the plants should have a fine shower from a syringe early in the morning, and when *T. H.* performs his toilet, let him give the roots the contents of his washing-basin. In such a position, there will be no fear of their growing too vigorously.

PROPAGATION OF AZALEAS, &c.—The *Beadle of Margate* may propagate Azaleas, Rhododendrons, and Oleanders with little difficulty if he will proceed as we direct him. When the plants are full of young shoots, about half ripe, slip them off, trim away the lower leaves, and dibble them round the sides of five-inch pots, half filled with peat, and the remainder to within an inch of the top with pure silver sand. They should be kept close in a frame till rooted, and then potted off singly in peat, and afterwards grown in a mixture of peat and loam. Next autumn, the Rhododendrons may be layered by making an incision half through on the under side of the branch selected, and pegging it down firm to the soil, and roots will be emitted from the tongue made by the incision. Azaleas root quickly, if young grass-like shoots, are dibbled thickly into silver sand, with sandy-peat below it for the roots to work into. They do best in a temperature of 56° to 60°, and must be shaded and covered with bell-glasses till rooted. The Oleander *(Nerium)* will root in no time if ripe shoots are inserted in phials of water and kept warm, and may then be potted in leaf-mould, peat, loam, and a little cow-dung. Oleanders need plenty of water. Rhododendrons seed freely. How is it that so few take the trouble to raise seedling plants?

CUTTINGS IN HEAT, &c.—*Passiflora.*—Your letter came a few hours before we went to press last month, and if your address had been enclosed, we should have answered you by post, so as to give you the information you desire in time to be useful. There is little need now for amateurs to continue striking cuttings in heat, for most things will root quickly in the open ground. Dielytras will root in a sandy border if covered with a bell-glass; geraniums root best in the full sun, and come quickest and strongest from half-ripe good-sized joints. Verbenas root at the joints if pegged down, and young points, before they set for bloom, soon strike under glasses in a cold frame, which is a good place for cuttings of most other things. Heat may, of course, be used, and the temperature may now be as high as 90°. Cuttings packed close in pots should barely

touch each other. Unless they are fully exposed to light, as geraniums ought to be, then a little over-lapping does no harm. The lower leaves only should be trimmed off, and cuttings of plants of a fleshy nature, should be dewed now and then by drawing the hand across a wet hard brush held beside them. This prevents exhaustion by evaporation from the leaves.

COCKSCOMBS.—*C. D.*—The grand point in the culture of Cockscombs is to have the flower very large and well coloured, the foliage healthy and without a spot, and well developed, and the stem so short as to be invisible. The best way of raising them is to sow early in heat. Prick out the young plants round the sides of five-inch pots, and give only water enough to keep them healthy, never to let them flag, but, above all things, to prevent any early luxuriance. When the plants meet, prick them out again to check them, and promote stubbiness of habit; and when they show bloom, select the best, and cut off the heads with five or six leaves only to each, and with two inches of stem to go into the soil. Pot these singly, within an inch of the lower pair of leaves in four-inch pots of rich soil; plunge in a hot-bed, give shade and water. They soon root, and must then have moderate heat, manure water occasionally, moderate ventilation, and plenty of light, and be shifted whenever the roots touch the sides of the pot. Thus you will have an immense breadth and luxuriance of plant without any lankiness of legs.

THOMPSON'S GAS HEATING APPARATUS.—*W. W.*—This invention has been improved, and is said now to answer well. The number of those who have been disappointed by it is by no means small, and many terrible complaints have been made by amateurs, who have discovered its defects when too late to save their collections. We cannot inform you of any one, who, to our own personal knowledge, has found it succeed, and we cannot advise you what to do with the apparatus, which has cost you £20. But our columns are open to any amateurs who can speak in its favour, and to the manufacturers themselves, if they can satisfy our readers of the efficiency of the invention. It is a hard case to labour as you have done, to improve the invention, but in such cases the heaviest blow is the loss of plants, the produce, perhaps, of years of patient perseverance. Just now, out-door matters claim our attention almost exclusively, but as autumn approaches, we shall go into the subject of heating, with a view to assist our readers in the simple management of their pits and houses.

VARIOUS. — *Winged Pea.*—None left, therefore, no more applications can be answered. *Mr. John Drury, Lime-street.*—A packet was posted to this correspondent and returned as not known.—Correspondents who enquire about nurserymen and seedsmen, are informed that we never recommend particular houses. It would be an abuse of journalism. The "FLORAL WORLD" is independent of every interest, except that of its readers. It is not influenced to the extent of one word of praise or blame by any publisher, nurseryman, exhibitor, or manufacturer.

DELPHINIUM FORMOSUM.—*R. U.*—Many have been disappointed with this, the very best of the perennial larkspurs. But the disappointment arises from mismanagement. Like many other herbaceous plants, it blooms in a series of successive efforts, and, if neglected, goes out of bloom before the end of the season. To keep it in bloom, every stem of blossom should be nipped off to the base *before* it has began to look shabby; this will promote a succession, and prolong its natural season. It makes a splendid bed, and we should hardly advise you to peg it down, though we know of no definite reason against such a procedure. Home grown plants are likely to be more dwarf than stock fresh from the nursery, for the growers are obliged to push such things on, to meet the demand, and they are apt to get drawn before the purchaser receives them.

APHIS ON ROSES.—*R. U.*—Roses and fruit trees are this season much beset with caterpillar, doubtless owing to the prolonged warm weather last autumn, which favoured a plentiful deposit of eggs. For caterpillar there is no remedy but hand-picking; but, for greenfly, tobacco-water and Scotch snuff are the established remedies. In using tobacco-water with the syringe, or in dusting with snuff, be sure to dress the under surfaces of the leaves, and drench well with clear water afterwards. We have never used Sigma's Aphis Powder, and refrain from incurring the responsibility of recommending it; but when such men as Mr. Rivers, and others, whose names are respected all over the world, testify of its efficacy, we must believe it to be a first-rate thing. The inventor strictly enjoins the keeping of it quite dry.

MUSHROOMS.—*London Subscriber.*—The subject is so important, that we shall treat it in full at the first opportunity. In the meantime, make up a dung-bed of short dung that has not been heaped or exposed much to the weather. Make it up slowly, so that no excessive fermentation takes place, and let it be moderately dry all through. When only comfortably warm to the hand, say "milk warm," spread two inches of loam over, and insert the spawn in pieces of the size of hazel-nuts all over it. Gentle waterings occasionally, with a close air and darkness, will give you plenty of mushrooms if the spawn is good, and you must pay 5s. per bushel to depend upon it. Most of the failures in mushrooms arise from the bad quality of the spawn.

TO CLEAN GARDEN STATUARY.—*Suburban.*—All kinds of stone-work out of doors may be cleaned by a very simple process, which we prefer to painting. Brush the stone with a stiff brush to remove dust and moss, and then wash with clear water. When dry, throw into a pail of water a small handful of Portland cement. Stir this up with a brush, such as plasterers use in whitewashing, and wash the stone-work with it. The water should be only just tinted with the Portland cement, or it will leave too thick a coat behind it. Some of Ransome's patent stone, which had got a little weather-stained we lately treated in this way, and its appearance is now as beautiful as when new; to all appearance equal to Carrara marble.

FERMENTING MATERIALS. — *Tiny.* — Grass mowings give out a good heat, but it is so fierce, so fitful, and so brief in its duration, that we cannot recommend so young a hand as you to use it. We saw the other day a new fermenting material in the shape of grocer's currants. A person met with a lot of damaged currants at a merely nominal price, and turned them to account in his forcing-pits, and he says he never saw forced strawberries turn out better than the lot he fruited with the help of the currants. When we saw the pits, the heat was steady and sweet, and, no doubt, when quite rotted, the stuff will be valuable for the compost yard.

EXHAUSTED HOT-BED.—*Chelsea.*—A bed badly made up, is generally made worse by patching. If nearly exhausted, a lining of hot dung may be useful, but, generally, it is better to take out the whole, and if there is plenty of undecomposed fibre in it, a mixture of some fresh fermenting dung, and a shaking up of the whole will create a regular heat. If very dry or very wet, a dung-

bed is sure to fail; it will either burn all before it, or give no heat at all; and it should never be trodden in making up.

HYACINTHS.—*C. McD.*—The foliage of Hyacinths should not be removed till it begins to die, otherwise the bulbs will be weakened. To bloom well next year, hyacinths should be allowed to complete their growth naturally in a generous soil, and be taken up when the foliage has died down, and *not before*. We shall give full instructions for the culture of the Hyacinth, but at this time of the year, the information would be less valuable than many other subjects that claim attention.

CUTTINGS.—*C. D.*—As a rule, cuttings should have only a few leaves left near the top, but when bell-glasses are used, and you are not afraid of damping, all the leaves, except the lower pair, may be left. If the leaves can be made to absorb so as to feed, instead of exhaust the stem, roots are more quickly formed; the reason why we remove leaves is, because we cannot usually keep them as wet as would be necessary to prevent flagging.

LOAM FROM A SEWER.—*P.*—We should not think of using soil from a sewer for any horticultural purpose, till it had been laid up in a ridge, and two or three times turned for twelve months. After being frozen through it might be good stuff. If you want to get rid of it at once, use it as a top dressing to your kitchen garden. It would, very likely, do well for the culture of melons.

CITY TREES AND GARDENS.—*B.*—This subject is being discussed in the columns of the *City Press*, which takes the lead among the local metropolitan papers. Mr. Broome's article appeared in the number for May 1. You can get it by writing to the office, 1, Long-lane, and enclosing two stamps.

MELON SEEDS, &c.—*Novice* may subject melon and cucumber seeds to a temperature of 90 degs., but 85 degs. is enough to start them well. We would gladly use a larger type, but the quantity of matter would be abridged, and in these times the public expect *quantity* as well as quality.

ROSA MUNDI.—*J. W. J. G.*—Don't stop or prune any more, let it run as it likes, and drench pretty often with an engine or syringe. We think you will then get bloom.

METEOROLOGICAL CALENDAR FOR JUNE.

30 DAYS.		WEATHER NEAR LONDON, JUNE, 1857.					30 DAYS.		WEATHER NEAR LONDON, JUNE, 1857.				
		BAROMETER.	THERMOM.		WIND.	RAIN.			BAROMETER.	THERMOM.		WIND.	RAIN
		MAX. MIN.	MX.	MN.	MN.				MAX. MIN.	MX.	MN.	MN.	
Tu	1	30.009—29.947	69	40	54.5	E	.00	W.	16	30.073—29.907	74	50	62.0	E	.01
W.	2	29.989—29.713	71	42	66.8	SE	.00	Th.	17	30.130—30.021	79	44	61.5	E	.00
Th	3	30.001—29.977	72	48	57.1	SW	.05	F.	18	30.159—30.122	75	48	61.5	E	.00
F.	4	30.020—30.000	78	55	64.5	SW	.00	S.	19	30.067—29.947	73	59	66.0	E	.62
S.	5	30.080—29.988	91	54	72.5	SW	.02	S.	20	29.925—29.915	80	58	69.0	SE	.68
S.	6	29.975—29.944	89	55	72.0	W	.05	M.	21	29.937—29.917	79	55	67.0	SE	.00
M.	7	29.783—29 588	79	51	65.0	SE	.20	Tu	22	30.166—30.100	78	52	65.0	W	.00
Tu	8	29.759—29.725	69	47	58.0	SW	.15	W.	23	30.213—30.163	83	50	66.5	E	.00
W.	9	29.794—29.759	66	43	54.5	SW	.10	Th	24	30.294—30.224	81	44	62.5	E	.00
Th	10	29.589—29.528	67	44	55.5	SW	.02	F.	25	30.346—30.341	84	43	63.5	E	.00
F.	11	29.085—29.801	68	35	51.5	W	.00	S.	26	30.331—30.192	85	46	65.5	SE	.00
S.	12	30.278—30.155	66	31	48.5	NE	.00	S.	27	30.133—29.997	88	45	66.5	SW	.00
S.	13	30.297—30.206	69	31	50.0	E	.00	M.	28	29.892—29.700	92	58	75.0	SW	.00
M.	14	30.135—29.977	70	43	56.5	E	.00	Tu	29	29.718—29.589	75	54	64.5	SW	.01
Tu	15	29.929—29.904	74	42	58.0	E	.00	W.	30	29.610—29.526	74	47	60.5	SW	.02

AVERAGES FOR THE ENSUING MONTH.

DURING sixteen years past, the temperature of the month of June has been:—Max., 71°; min., 50°; mean, 58½; June is, therefore, 5½° warmer than May, and 20½° than January. The average temperature of the dew point in the month of June is 50¼°; the average of rain during June is, 1.7 inches, which is but a slight variation of the fall during the preceding five months. There is a considerable increase in the aqueous contents of the atmosphere, a cubic foot of air, containing four grains of water, during the month of May, the average is, 3.4 grains; in January, only 2.4. During thirty-one years past, the highest reading of the thermometer was, 93°, and occurred on the 27th, 1826, and the 19th, and 22nd, 1846. The lowest, 30° on the 15th, 1850, and the 20th, 1855,

PHASES OF THE MOON FOR JUNE, 1858.

☾ Last Quarter, 4th, 8h. 21m. p.m. ● New Moon, 11th, 2h. 46m. p.m.
☽ First Quarter, 18th, 8h. 14m. a.m. ○ Full Moon, 26th, 9h. 13m. a.m.

MEETINGS AND EXHIBITIONS, JUNE, 1858.

WEDNESDAY 2nd, Royal Botanic, Regent's-park; Bristol and Clifton.—WEDNESDAY 9th, and THURSDAY 10th, London Horticultural Grand Show at Chiswick.—THURSDAY 9th, Scottish Pansey, Glasgow.—TUESDAY 15th, Royal Oxfordshire Horticultural, Trinity College Gardens.—WEDNESDAY 16th, THURSDAY 17th, Crystal Palace, Grand Exhibition.—THURSDAY 17th, Chertsey Floral Society.—WEDNESDAY 23rd, Royal Botanic, Regent's-park.—THURSDAY 24th, National Floricultural Exhibition, at 21 Regent-street; British Pomological, St. Martin's Hall.—TUESDAY 29th, Handsworth (Birmingham) Hereford; Leicester.—WEDNESDAY 30th, Brighton and Sussex Floricultural; Colchester.

THE

FLORAL WORLD

AND

GARDEN GUIDE.

JULY, 1858.

N the evening of Friday, May 29, during the sitting of the House of Commons in Committee of Supply, a vote of £99,667 was submitted, for keeping in repair the Royal Parks and Palaces. Mr. Williams, lacking boldness to denounce the vote, according to the policy of general obstruction to which he has long devoted himself, had the coolness to propose that a portion of the sum should be made up by a forced sale of the surplus plants in Kew Gardens, which he understood were most valuable. That the proposal should not have been taken up and adopted, is a fate common to the proposals of the honourable gentleman, who, to maintain his assumed character as a champion of retrenchment, would not spare sacrificing the best specimens in a collection which the people have long regarded as their own school of practical botany, which they have paid for, to promote education and science, and as the proper furniture of one of the most delightful places of public resort. Retrenchment is no doubt necessary in many of the public departments, but we have no sympathy, and desire no friendship with a man who would openly play the Vandal with a public collection of any kind, whether of plants, minerals, pictures, or what else, and the mistaken spirit of the would-be-liberal is plainly manifested, when, to reduce an item of expenditure already small enough, he would sacrifice the enjoyments of the people, by introducing a system which might lead ultimately to the breaking up of the finest collection of plants in the country. But Kew is to have a better fate. On that same night Mr. Adams enquired whether any new greenhouse had been provided at Kew, in accordance with the recommendation of the committee, and, as was urgently required, by the great increase in the most valuable plants. As to the possibility of making the gardens profitable, the hon. gentleman would find that the metropolitan parks had been supplied during the past year, by the gardens at Kew, with upwards of 10,000 trees, which would otherwise have had to be provided out of the public funds.

Mr. Slaney suggested that shelter-houses should be provided in the public parks and places, as well for shelter, as to enable liberal persons to provide treats for the poor. He would also call the attention of the noble lord to the condition of Victoria Park. He had visited that park lately, and he would venture to say there were very few seats or benches placed there for the accommodation of the people. Lord J. Manners, replying to Mr. Adams, said he had inspected the site of the new conservatory at Kew, which he hoped would be of great public benefit.

It is a happy thing that at last there is a chance of saving the noble plants that have long been going to ruin for want of shelter at Kew. A small vote would suffice, and that vote we have now but little fear of seeing heartily acceded to. Lord John Manners has had full opportunity of making himself acquainted with the nature of the case under the personal counsel of Sir W. Hooker, and in the next session, should his Lordship remain in office, he has promised to submit a vote for the purpose. To this end the advice of Sir Charles Barry has been sought, in order that plans and estimates may be prepared in good time, and we may now hopefully look forward to the time when the trees and shrubs of temperate climates, which need so little protection from the rigours of our climate, will be as well cared for at Kew, as are the grand tropical plants for which, hitherto, it has enjoyed so world-wide a fame. During a discussion on the subject, Colonel Sykes remarked, that while a conservatory at Kew was a thing most essential to the maintenance of the collection, he should also like to see Kew become a school of science for botanists, and enable them to give the public the result of their scientific researches in all parts of the world. It *is* a school of science for botanists, and is fast becoming a school of science for the people, thanks to the indomitable, yet quiet energy of its master spirit, Sir William Hooker, the first botanist in the world.

Dr. Robert Brown, D.C.L, F.R.S., &c., the great botanical explorer, died at his house in Dean-street, Soho, on Thursday the 10th of June. Dr. Brown was a true successor to Linnæus, an original worker in the great fields of botanical science, and the nominee of Sir Joseph Banks in the survey of the Australian Coasts, in 1801. Many of the choicest Australian plants in our collections, date their origin from the voyage of the "Investigator," in which Mr. Brown was sent out in the capacity of naturalist, when for the first time, the wealth and peculiarities of the Australian flora were fairly made known to Europe. During the three weeks devoted to the survey of the harbour of King George's Sound, Mr. Brown collected no fewer than 500 plants, the great majority of them then new to science. After numerous other expeditions, Mr. Brown became librarian to Sir Joseph Banks, in 1814; subsequently librarian to the Linnæan Society, and, after the death of Sir Joseph Banks, he became, by his will, the possessor of the Banksian herbarium for life, after which, it was to pass to the British Museum. Mr. Brown at once offered the collection to the Museum, and was appointed its keeper, with a salary; and among the curiosities of that herbarium we have many a time, years gone by, enjoyed his kindly conversation, and received his freely-given instructions. For some years Mr. Brown held the office of President of the Linnæan Society, which he resigned in 1853. Last spring he became afflicted with bronchitis, recovering from which, he was attacked with dropsy, under which he gradually sank, and finished his career in peace, with scarcely any pain. He was born at Montrose, December 21, 1773, where his father was a clergyman of the Scottish Episcopalian Church.

THE JUNE EXHIBITIONS.

JUNE, with all the glories we are wont to associate with it, has been tenfold more glorious than usual this summer, for those whose interests are associated with the culture and exhibition of flowers. In London, we have had a series of grand exhibitions, equal in their splendour and success to the greatest triumphs of old times at Chiswick, and, in some respects, surpassing all former exhibitions on record or in memory. The results of the past summer have been this season specially exemplified in the profuse blooming of camellias, azaleas, rhododendrons, and kalmias, which, having ripened their wood to perfection last year, have this season shown how essential to future effect is a thorough maturation of the growth of the year. At the Royal Botanic, at Cremorne Gardens, at Bagshot, and wherever the so-called "American Plants" have been on view, the public eye has been satiated with colour; and, in private collections, everywhere, the free blooming by such plants has been a subject of daily exultation as long as they lasted. That class is now pretty well over, but private purchasers have had every possible opportunity of making selections, as to colour and habit, to improve their plantations and conservatories; and the perfection to which the growers of these plants have brought them, and the numerous improvements that have resulted from hybridization, render American plants, more than ever this season, objects of pecular interest. In our visits to the several exhibitions, we have noted down many items for the consideration of our readers, which we shall submit from time to time, as opportunities present themselves. First, among the events of the month, was the second exhibition of the

ROYAL BOTANIC, Regent's, Park, which was largely made up of plants shown at the Crystal Palace, on the 22nd of May. Stove and greenhouse plants were numerous, and produced a splendid effect. The first prizes for them were awarded to Mr. Whitbread, gardener to H. Collyer, Esq., and to Mr. Dods, gardener to Sir J. Cathcart, Bart. Azaleas were pretty well gone, but Chelsonii, sent by Messrs. Lane, presented a dazzling sheet of orange, and may be set down as one of the most effective when grown to specimen size. The pelargoniums were the principal attraction, and, as usual, Mr. Turner carried all before him. His collection of twelve consisted of the following:— Admirable, Marvellous, Standard, Symmetry, Wonderful, Lucy, Una, Sanspariel, Carlos, Governor-General, Viola, and Rose Celestial. Messrs. Dobson had Arab, Gem of the West, Carlos, Arethusa, Admirable, Sanspariel, Governor-General, Eclipse, Lucy, Euphemia, Rosa, and Eveline Among private growers, Mr. Foster and Mr. Beck, gentlemen of about equal eminence as raisers, were close competitors. Mr. Nye, gardener to Mr. Foster, was first with Agnes, Meteora, Fair Ellen, Lucy, Wonderful, Viola, Saracen, Sanspariel, Prince of Wales, and Carlos. Mr. Wiggins, gardener to Mr. Beck, came second with Governor-General, Carlos, Fanny, Emperor, Sanspariel, Sunset, Wonderful, Gem of the West, Euphemia, and Hesperus. In fancy pelargoniums, Mr. Turner took the lead with six plants of extraordinary beauty; they were Celestial, Cassandra, Cloth of Silver, Evening Star, Bridesmaid, and Madame Sontag; and whoever would make a bold step forward in this class must add all the six to their collection, if not possessed of them already. Messrs. Frazer had Jenny Lind, Conspicuum, Madame Sontag, Delicatum, Evening Star, and Celestial. In this class, the winning private growers were Mr. Bousie, gardener to the Hon. H. Labouchere, M.P., and Mr. James, gardener to Mr. Watson, of Isleworth. There was a fine bank of seedling pelargoniums, some of which we noted as likely to make a sensation hereafter, namely, Ariel, a finely-formed light flower, apparently of first-rate habit; Lightning, a rich crimson, with top petals nearly black, fine, but not strikingly differing from varieties we have already; Leviathan, purple and large, and well suited for specimen culture, to relieve white kinds by contrast; and Countess of Shaftesbury, light and cheerful, and of a class it is quite desirable to multiply. A fine dark fancy, called Negro, received a certificate; it is a rich flower, dark maroon, with white centre and edges most regularly marked and effective. Larkfield Rival, though not successful, will become a popular variety, and may prove useful for bedding. It is like Virginium, but with shorter footstalks, and, as a free bloomer, will probably prove a good market flower. At the Chiswick show the same plant arrested our attention, and we noted it as "useful."

Roses were barely up to the mark; the sun had been too fierce for them, and the freshness of the first blooms was over. Messrs. Lane were the winners of first prizes in this class, but Mr. Paul trod close on the heels of his Berkampstead rival. The pretty new yellow rose, Madame William, was in beautiful condition, and may be safely classed as a desirable novelty, which should be added to collections, now

promising to become rich in yellow roses. Orchids and ferns were well shown, so were fruits, pine-apples, and grapes especially. The first prize was taken by Mr. Bailey, Shardeloes, for a handsome Providence pine, weighing ten pounds. Among new plants, the lovely Clianthus Dampieri, from Messrs. Veitch; Rhododendron Maddeni, from Messrs. E. G. Henderson; and Azalea invictissima, from Mr. Waterer, of Bagshot, were specially interesting. The Clianthus we shall notice next month, with the help of an engraving. The grand out-door feature at the Regent's Park, last month, was the show of rhododrons, occupying an acre of ground, by Mr. John Waterer. The selection of sorts was equal to the manner in which the plants had been bloomed and grown, and was such a show as only a Bagshot grower could produce. Many of the specimens were of immense size, and covered with bloom from head to foot.

The Chiswick Summer Show was the fête of the season, and though the Royal Botanic and Crystal Palace have divided interests with the ancient home of horticulture, and the society itself has passed through a fiery ordeal, the 9th and 10th of June will be long and agreeably remembered by all who enjoyed the luxurious turf and the plenitude of green shade, the music of the promenading band, or the right royal display of the wealth of a thousand gardens, stoves, and greenhouses. The proximity of the river, which at Chiswick ceases to be fœtid; the communications with the grounds at Chiswick House, which enabled visiters to leave the show and enjoy the results of the skill and taste of one of the most munificent patrons of horticulture; and the rich fullness of the gardens themselves, and the practical illustrations of horticultural art which abound in the orchard, kitchen garden, and shrubberies, suffice to sustain the genius of the spot, who, for handmaidens, claims Flora, Pomona, and Ceres—a happy and a beauteous trio. The gardens were profusely decorated with ornamental works in iron and stone, comprising jardinieres, seats, arches, vases, fountains, &c.; and the show of implements included mowing machines, machines for irrigation, and minor things in every variety, from Gidney's shilling cucumber-slicer—to illustrate the use of which cucumbers were plentifully supplied and freely eaten—to huge peach-houses and complete conservatories. Having made special note of several of these things, we shall from time to time illustrate and describe such as appear to us most likely to be useful to our amateur readers, and this month we give illustrations of a selected few.

On Tuesday, the day before the show, a trial of mowing-machines took place. The machines were 22-inch, worked by hand, and the ground selected was parcelled out by lot, Colonel Challoner and Mr. Edward Easton, being the judges. The determination of comparative excellence was arranged by giving points, sixty points being perfection. Perfection for work, construction, and lightness of draught. Four machines were submitted to trial, with the following results, which we quote in the original tabular form, as most convenient for reference, merely premising that the time allowed for the trial was 6 minutes 35 seconds:—

Maker's Name.	Sq. ft. cut.	Sq. ft. cut per minute.	Points awarded.				Price.
			Work.	Construction	Lightness.	Total.	
							£ s.
Green ...	1600	242	50	50	60	160	8 10
Shanks ...	1302	197	45	50	40	135	7 10
Ferrabee...	1503	228	15	45	50	110	6 0
Deane ...	1046	158	25	10	60	95	6 8

Early on Wednesday morning, Her Majesty and the Prince Consort took a private view, which occasioned a night of hard work to the *employées* to prepare for; Her Majesty (guess why?), declining on this occasion to associate with her loving subjects.

The grand feature of the show, especially to botanical eyes, was a conservatory—the large one—half full of stove plants, contributed by Messrs. Veitch, but not for competition. Here was Clianthus Dampieri again, numerous orchids, including Cattleya mossiæ in perfection, Dendrobium densiflorum, several Vandas, the lovely Lælia purpurata, Aerides Lobbi and Maculosum, Saccalobium curvifidium, and a multidude of Phalænopsis, with their pretty white butterfly flowers. It was worth anything to see the pitcher plants, so superbly grown, and illustrating the vast resources in high-class plant culture of the Messrs. Veitch. There was a portion cut off the curious lattice plant of Madagascar, the Ouvirandria fenestralis, which is like a pattern in lace, the leaves being wholly reticulated, and with no parenchyma between the thread-like ribs, which are arranged with almost mathematical precision under the water in which the plant flourishes. Some specimen Dicksonias, the climbing Lygodiums, and other exotic ferns, many charming lycopods, and a few conifers and palms added much to the beauty of this fine collection. The remainder of the conservatory was similarly occupied with foliage-plants and ferns, and

a very charming Wardian case, exhibited by Mrs. R. Wollen, of Chepstow Villas, Bayswater, stood in the centre to claim admiring observation.

The next best general collection of stove plants was that from Mr. Dods, gardener to Sir George Cathcart; it included Platycerium grande, the elk's horn fern of Moreton Bay. It was fastened to a board, in the same fashion as the one in the tropical department, at Sydenham. The old Caladium bicolor was well done by Mr. Dods, and the admirable manner in which this plant was shown by other exhibiters, may, perhaps, revive its cultivation, for it is not often we see it in collections, owing, doubtless, to the prevailing fashion for novelties.

Azaleas were far from exhausted, and on some of the stands were still in their prime. Mr. Carson, gardener to N. F. G. Farmer, Esq., of Nonesuch Park, exhibited the best lot, in which Lateritia, Iveryana, Barclayana, and Gledstanesi were conspicuous for growth and fine condition. Messrs. Ivery, Rhodes, Green, and Reed also exhibited azaleas, Mr. Ivery having Chelsonii and Feltonii and other first-class varieties. A splendid effect was produced by a bed of rhododendrons, by Mr. Standish, of Bagshot; among them Concessum, a papery white ground, with a blush of pink over it; General Cabrera, carmine, with black blotch on the upper petals; and Prince Consort, deep claret, and the habit close and showy. For the collection of eight rhododendrons, Mr. Standish took the prize, besides a second prize for rhododendron Perfection. Mr. Glendinning and Mr. Salter were close together in variegated plants, Mr. Salter being particularly strong in British plants with marked leaves. Farfugium grande was the chief object of attraction amongst them, the leaves as large as those of the white water lily, the colour rich green, blotched with pale yellow and white, and in the specimen plants the effect was superb.

Pelargoniums had a tent appropriated to them, but there were collections in other tents. Among the amateurs, Mr. Nye, gardener to Mr. Foster, took first prize; and among nurserymen, Mr. Turner was first, as he was, also, for six French, and six fancies; Mr. James Weir, gardener to J. Hodgson, Esq., being first in the amateur's class for fancies. Mr. Turner's six fancies were the following:—Bridesmaid, Celestial (splendidly done), Emperor, Cassandra, Electra, and Rosabella. Messrs. Frazer stood second with Evening Star, Delicatum, Queen of Roses, Electra, Conspicuum, and R. Cobden. There was an immense collection of seedling pelargoniums, which, judging from the awards, were but hastily looked over by the judges. Perhaps, the Queen coming when they were at work may have interfered with the examination, though we should hope not.

Larkfield Rival, which, at a little distance, has the character of Bridesmaid, looked as if it would make a famous bed, if its habit fits it for such work; it is light and free; if continuous, it will be of great value. Mr. Smith, of Hornsey, who is taking the lead in fuchsias this season, had his Prince of Prussia in fine trim. Among the cut flowers, which were generally good, Mr. Tysoe, of Wallingford, had a superb collection of ranunculuses. They were perfect, and though we scrutinised them closely, but not suspectingly, seeing the name that was attached to them, not a trace of unfair dressing was perceptible. Mr. Tysoe well deserved the Banksian medal, which was awarded him for them.

The roses were in much finer condition than could have been expected, considering the trying weather. There were eight prizes distributed thus:—Amateurs' 8 roses in 13-inch pots, Mr. Terry, gardener to Mr. Puller, of Ware; 10 roses in 13-inch pots, 1st, Messrs. Lane, 2nd, Messrs. Paul, 3rd, Mr. Francis, whose roses were grown on the Manetti stock; 10 roses in five sorts, brought out since 1852, in 8-inch pots, 1st, Messrs. Lane, 2nd, Messrs. Francis; 20 roses, two of a sort, in 32-sized pots, 1st, Messrs. Lane, 2nd, Mr. Francis; this last prize was offered to Dr. Lindley.

The fruit was equal to the other departments of the Show; the black grapes were particularly fine, the bunches of Hamburghs, from Mr. Flemming and Mr. Hill being admirably coloured. Pines and miscellaneous fruits were abundant, but there were only three collections of vegetables, and though the specimens were good, there was nothing worthy of special notice among them.

The Crystal Palace Show, which took place on the 16th and 17th, fell so close upon the heels of the Garden Show at Chiswick, that to professional eyes there was not much to be seen, but to the great mass of the public, it was a treat of no mean order, and the perfect state of the palace and gardens, in full summer dress, made it a fête of the day. Roses were in poor condition, done up with the heat of the weather, but the old yellow Provence rose, which many a rose grower of the present day knows only as an historical flower, was in lovely trim, the colour unequalled, and the blossoms well opened. Ferns were well shown, but there were none from Mr. Sim, and his absence

made a blank in that department. Messrs. Veitch and Mr. Dod led the way in stove plants, exhibiting much the same as at Chiswick, and novelties were decidedly scarce. Still, as a show, it was satisfactory, and the attendance was good.

Oxfordshire Horticultural Society.—The exhibition took place on the 15th of June. In the prize list, open to all England, Mr. Dingle, gardener to A. Lawrence, Esq., of Bath, took the first prize for stove and greenhouse plants; his collection consisting of Erica depressa, Dracophyllum gracile, Pimelia Hendersonii, Medinilla Magnifica, Ixora coccinea, Helichrysum prolifera, Erica Cavendishii, Aphelexis macrantha grandiflora, Genetyllis Hookeriana; 2nd to Mr. Griffin, nurseryman, Bath; 3rd, to Mr. Bailey, gardener to G. V. Harcourt, Esq., M.P. The first prize for Cape Heaths, in six varieties, to Mr. Dingle, for Masoni, major, Vernonii, Candoleana, Ventricosa, Bothwellianai Perspicua Nana, Mutabilis; 2nd, to Mr. Griffin, Bath, Ventricosa superba, Eximia, Cavendishii, Tricolor, rubra, Masonii, Ventricosa breviflora. Mr. Charles Turner, Slough, took first prize for Geraniums, (not fancies), in eight-inch pots, 12 varieties—Etna, Floretta, Cynthia, Matilda, Dollabella, Bianca, Evelyn, Symmetry, Floribunda, Mazeppa, Flora, and Belle of the Season; 2nd, to Mr. John Soden, Barton, for Virginia, Arethusa, Sansparíel, Carlos, Topsy, La Blache, Forget-me-not, Majestic, Wonderful, Rowena, Petruchio, and Fair Ellen.

OLD WALLS AND MATERIALS AND METHODS OF TRAINING.

Our opinion is, that for brick walls nothing is better than the old system of nailing the shoots to the walls by shreds and cast-iron nails; our objection to loops or nails driven into the wall permanently, for tying the branches to, is that, although they in some measure save the walls, they inflict great injury on the trees, by the branches, in the course of time, growing into them and causing canker. We have tried both loops and common nails extensively, and are now discontinuing their use for the above reason; besides, a man can get over a wall of trees much quicker with the nail and shred, than by tying in the shoots to the nails, and make a better job of them to boot. The shreds should not be cut too wide, and when the young wood of the trees is unnailed in the autumn, the shreds should be picked over and boiled, and then dried for use. Wall nails are frequently used too large, for, with the exception of securing the large branches of the Peach and spur-bearing wall trees, which require stout nails, and should be fastened with osier twigs, small nails will be found to answer best, as more easily driven into the wall and extracted. Some descriptions of walls are built of materials so hard that nails can only be driven into the joints, which, when the stones are large, may be too wide apart for training; in this case, and especially if the face of the wall is rough, we recommend a coarse stucco and wiring with either copper or galvanised iron wires placed close to the wall. It is of but little use attempting to grow good fruit against old brick walls, full of nail holes, and with bad joints, as these harbour insects to such a degree as to frustrate all hopes of keeping them down. Our plan is to unnail the trees from the walls, and either early in the autumn, or when all danger of severe frost is over in the spring, rake out the joints and fresh point them, after which put some unslaked lime in a tub and pour boiling water on it; when the lime is slaked, pour in sufficient gas-tar to make it a paste, well mixing the whole together; give the wall a couple of coats of this, diluted to the consistency of whitewash, allowing it to dry before the second application. This will prove an effectual preserver of the brick-work, as it forms a body which resists all damp, and fills up the chinks and nail holes at the same time. When this second washing over is well dried, the wall may be coloured to taste, with a mixture of Roman cement, Spanish brown, or red and umber, as may be required. We prefer a neutral tint ourselves, but a few trials will show the proper proportions of each to be used. We should recommend all old walls to be brushed well over with the above composition once in two years, to destroy the eggs or larvæ of insects, as well as to preserve the walls, and can assure our readers it is at once the most cheap and effectual preserver of brick-work they can employ.

Espaliers, trees on the old plan of stakes and rails, are most troublesome and expensive to manage. The cheapest way in the end is to purchase what is called

wire fencing, now so much in vogue, with five or six wires for training the shoots horizontally to, and having either iron or oak supports and straining posts. When once these are fixed, the after trouble is very trifling; a coat of mineral paint or the tar mixture once in two years will keep them in good repair, and they form a very neat training espalier, very suitable for Pears, Apples, Plums, and Cherries. The bottom wire should be twelve inches from the earth, and the others nine inches apart. We prefer this to bushes for gardens of limited size, and they form neat divisional fences, and for bordering the main walks. Another great advantage of espaliers is the ease with which the trees, when in bloom, can be protected from spring frosts by forming a slight framing over the line of rail, on which canvas or garden mats may be placed day and night, when danger is apprehended. Any of the manufacturers of wire fencing would give estimates for the cost of espalier such as we recommend. —*Turner's Florist, May.*

THE CULTURE OF PAWLONIA IMPERIALIS.

This most beautiful plant can be propagated either from the root or cuttings of the stem. It requires a very rich soil to do well in, and if you give it plenty of dung when you plant it, especially when you want to propagate it by the roots, you will be more certain to make fine plants; and if you planted in the autumn, you will be able to get roots large enough to make plants the next autumn, when you can dig round the mother plant, and cut off as many pieces as you think you require; place them round the sides of your pots or pans, the latter being preferable, and put in the middle of your pots or pans a mixture of loam, peat, dung, and roadsand. Put them in a cold frame till spring, and then remove them into heat, and in a short time they will start vigorously. When they are grown about three inches, put them into a cooler frame or greenhouse, and, by degrees, harden them off and stand them out in a shady place all the summer; and early in the autumn plunge them in a south aspect; there let them remain till spring, then pot them off, or turn them out, as you may require to use them. In two years you will have nice plants, fit for any of the purposes to which Pawlonia may be applied. I shall not soon forget the pleasure it gave me when I first hit upon the mode of growing them here described. If you cannot get the roots, there is another method, namely, by cuttings. Cut off some pieces of the old wood, and place them in heat, and when the shoots are two inches long, take them off with a heel, and put them in the same soil as above described for the roots, and serve them in the same way, and good plants will be the result.

Hill Nursery. J. C.

PEGGING DOWN.

After trying every method I have ever seen or heard of, I give my vote for bass matting as the best. Take a short strip, pass it over the stem to be fixed, put the two ends together, and dib them in firm either with the finger, and a bit of tile, or a small dibber. I prefer the first small stone I can lay my hands on, and would undertake to cut up a mat into lengths, and peg down securely a given number of plants, in half the time it would take to cut pegs, either from snowberry, fern, or deal, and by the way, a deal lath split up and wetted makes as good pegs as anything. Hair pins I never use, from a constitutional horror of iron in the soil. I can't even bear to drop a nail on the border, when dressing wall trees. I saw the other day, at Mr. Clarke's, in Bishopsgate-street, an invention for pegging down, which consisted of a zinc stem, bent over into a hook at the upper end. For stout subjects requiring a firm grip, these would, no doubt, be useful, and I should recommend them to those who use hair pins as a substitute free from pernicious effects on the soil; but, depend upon it, when once you take to bass for the purpose, you will soon need nothing else.—An Old Gardener.

Pegging Down.—The article I use for the purpose, is common hair pins, which I find answer well and are very neat, they can be bought from 1s. to 1s. 3d. per pound.

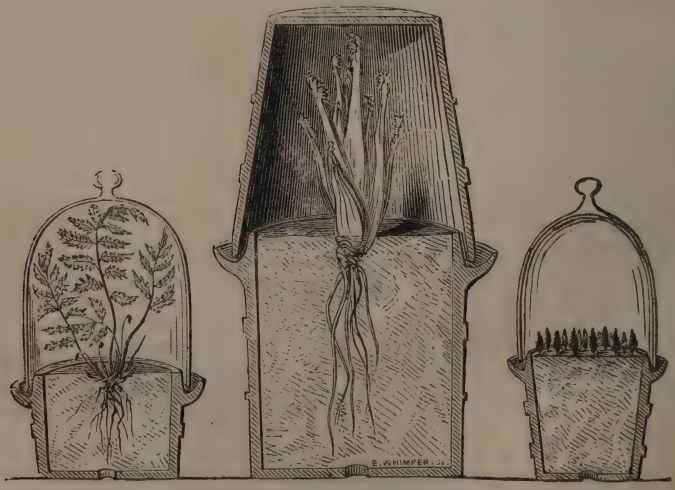
J. R.

NEWLY-INVENTED GARDEN POTS.

Writers on horticulture have repeatedly complained that the manufacture of flower-pots made no advance with the progress of horticulture. While every other department of the art has made rapid strides, the flower-pots of to-day are made in the same fashion as those used a hundred years ago. It is true that a common flower-pot is a most useful and accommodating thing, but the wants of gardeners are so various that we now require pots of many kinds—tall ones for bulbs, shallow ones for lycopods and ferns, double water-tight pots for aquatic plants, and, above all, ornamental pots that may be used in windows without disgracing them. The cause for complaint is rapidly disappearing; the want has at last created a supply, and numerous examples of inventive ingenuity—as applied to this branch of manufacture—claim the attention of the horticulturist. We shall now draw the attention of our readers to a few of those which appear to us most important to amateurs, and, first, let us dispose of those made rather for use than ornament, because the raising of plants must take precedence of the displaying of them.

PASCALL'S SEAKALE AND PROPAGATING POTS

Are the invention of Mr. Fry, and are manufactured by Joseph Pascall, of the West Kent Potteries, Chislehurst, Kent. In the engraving, the seakale pot is represented in section, with a plant in the centre. It measures thirteen inches outside and nine inches inside. Round the top edge is a rim, which, with the inside edge, forms a groove, into which fits another pot, inverted, so as to ensure total darkness to the plant for the purpose of blanching. In seakale and asparagus forcing, the plants are taken up and potted into these pots. The covers are put on, and the pots plunged in the fermenting material, and the crop is raised and taken in a most convenient and cleanly manner. We have used them also to blanch dandelion in spring, and, as a very moderate heat is sufficient for that plant, a half-spent bed and a few of these pots suffice to supply the table for a considerable time with one of the most elegant and acceptable of salads. The cutting pots are represented on either side of the seakale pot. They are made on the same principle, but, instead of a dark pot, a bell-glass is fitted in the groove, and the cuttings may be planted close over the whole surface, giving but little trouble as to watering or other attention, and ensuring their more certain striking. These also make excellent fern-pots—they are, in fact, Wardian cases in miniature, and when suitably planted, their appearance is very elegant, owing to their neat shape and the fine red ware in which they are cast. We have used them for three years past, and have now a large collection of ferns, mosses, and lycopods, growing in them most luxuriantly. For hymenophyllums, trichomanes, dionæas

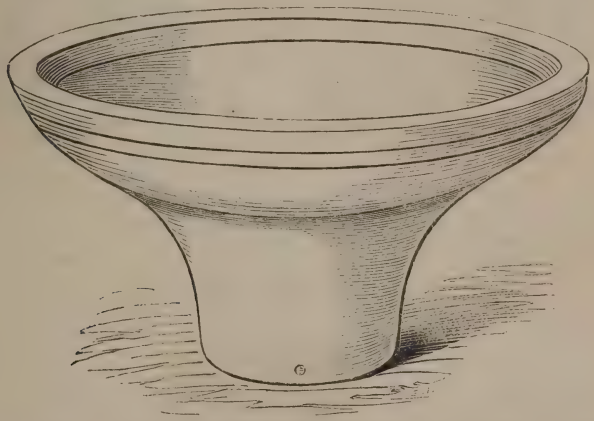


Droseras, and, indeed, fine foliaged plants of all kinds, they are invaluable; for, while they enclose the plant in a moist air, and keep its foliage untouched by dust, they also

admit sufficient ventilation under the edge of the glass to prevent drawing or damping, and, if required to be air-tight, can be made so, either by filling the groove with silver sand or water. We consider a supply of these pots indispensable to every garden and greenhouse. They are made in every size, from four to twelve inches. [Price:—Seakale pots, 1s. 6d. each; cutting pots, four-inch 2d., six-inch 3d., ten-inch 6d., twelve-inch 8d.]

VERBENA POT.

This, as represented in the woodcut, speaks for itself. It is an admirable thing in which to grow verbenas, and all other trailing plants, for exhibition, as the broad rim allows of the spreading of the plant, and the contraction of the lower part prevents over potting. It has an elegant outline, too, and that is much in its favour. We first saw it at the Crystal Palace Bazaar, where Mr. Pfersdorff had some trailing succulents growing in them, and evincing the adaptation of plant and pot for each other.



As we have not yet used them ourselves we are not aware of the price.

ROYAL HORTICULTURAL POT.

A very bad name for a most valuable invention. Made like an ordinary pot, but with two raised bands round the sides, and the whole very carefully cast, so as to be perfect in shape, and the rim cleanly moulded. The colour is a pale, creamy stone, and the two bands, and the lower edge of the top rim are a sort of dingy slate. For window-sills they are very chaste and elegant, and may be filled with mould like ordinary pots. One great advantage of this pot, is, that its colour indicates the condition of the soil within it, as to moisture. When quite dry, the colour is cream, when very

wet, it deepens to a soft buff, and every degree of moisture, between the two extremes, shows itself outside in the tint of the pot. "Royal Horticultural" is a very general term; if called "tell-tale" pots, the name would just express its purport. We have a few dozens in use, and can commend them to all who like elegant pots as well as elegant plants, for if not on the tell-tale principle, their neat appearance would ensure for them almost universal adoption. They are made and sold by R. Smith, 3, Queen's-road, East, Chelsea. [Price, per dozen, with saucers, 60's, 2s.; 48's, 2s. 6d.; 24's, 4s.; 16's, 5s., &c.]

GLASS MOSAIC JARDINIERE.

Some of these mosaic jardinieres were exhibited at the June show, at Chiswick, and we at once booked them as proper for our own use, and for recommendation to our readers. They are so exquisitely beautiful, that we cannot hope, either by description or engraving, to convey an adequate idea of them to any reader who has not seen them, and this, because their chief beauty is in their rich emblazonment of colouring. They are intended to receive choice plants

in pots, the pots to be hidden with moss, and thus to ornament the drawing-room, or the dining-table, or for the window of a boudoir, or any choice spot where floral gems are to be seen at their best. The glass mosaic, arranged in colour patterns of rich and pure designs are let into a pure white cement, and the whole hardened and polished to one glistening surface. Some of the designs are copied from Mr. Glashier's illustrations of snow crystals, and thus illustrate science, as well as exemplify art. Inside the pots are lined with zinc, so as to be adaptable to receive soil, if necessary, or filled with water, to act as vases for cut flowers. They attracted many longing eyes at the Chiswick, and Crystal Palace Shows, and were the subject of much eulogistic comment. Made by Mr. G. H. Stevens, 56, Great Queen-street, Lincoln's-inn, London. [Price, 6-in, £2 2s.; 7-in, £3; 8-in, £3 10s. Set of three, as represented in preceding page, £6 10s.]

SKELETON LEAVES.

It is no disparagement to the wax, cambric, and paper leaves and flowers, or to the many other interesting, and, to say the least, most innocent, indoor occupations of our fair friends, to state, that that which is *natural*, is more pleasing, instructive, and beautiful than that which is, at its best, only artificial. There is very much to admire in the elegant and skilful imitations of the floral world which have occasionally come under our notice, and to such we would ever award our meed of praise; but we doubt whether the best works of these artistes would bear comparison, in point of real beauty, for one moment, with nature's simplest skeleton of a leaf. We have had many inquiries as to the method of producing these skeletons, which are beginning to attract so much attention; and, with the remark, that, when perfectly obtained and tastefully grouped, nothing is more elegant or ornamental, we proceed to give, to all whom it may interest, the *modus operandi*.

Soak the leaves in rain-water until they are quite soft, and the skin which envelopes the skeleton is quite loose. By placing them, one at a time, in a plate full of water, you will be able to strip them, and remove this skin and pulp with a needle or the finger; this requires care, so as not to break the skeleton; but, with ordinary care, it is easily accomplished. The water, as it thickens, should be changed, and the final clearing of the pulp from the fibres of the leaf, is best effected by a camel-hair brush. The time they require to soak depends upon the kind of leaf, the temperature in which they are kept, the season of the year, the age of the leaf, &c. Skilful manipulation, and many other details essential to complete success in this, as in everything else, are gained only by patience and experience. There is, of course, no royal road. There are some chemicals which much assists the work of decomposition, but we do not recommend their introduction, as it must be a very nice operation to hasten the destruction of the pulp without injuring the fine skeleton, which it is your aim to obtain perfect, and without a flaw. This leads us to another remark, which may not be unnecessary, though obviously, if not ridiculously, true, that unless you put in perfect skeletons, you will never take them out. During the soaking, many a perfect skeleton (covered of course, when put into the bath with its skin and pulpy coat) becomes an imperfect one, the fibres decomposing as well as their envelope of pulp; but the least imperfection can never be improved or removed. Let no time and patience be uselessly expended, on any, therefore, but the most perfect leaves. Partly decayed leaves are, therefore, out of the question; young ones equally so; what you require primarily and fundamentally is the *perfect* and *mature* leaf. Brown spots or specks of any kind upon a leaf, render it useless for the purpose of skeletonizing. Those which bear the operation best are evergreens; the reason will, from the previous instructions, be at once apparent; and it will be equally apparent, that the soft leaves of very quick growing plants of annuals, &c., are incapable of the process; hence, we generally see the holly, ivy, and magnolia; and to these we may add, as very suitable for the purpose, and affording variety and elegance of outline, and that fibrous network we term the skeleton, and which, by the bye, is as peculiar to each individual kind of leaf as its form, the orange, and lemon, the pear, rose, willow, sycamore (very beautiful), oak, poplar, hawthorn, fig, &c., also, the butchers' broom, the petals of the hydrangea, the fruit of the thorn, apple, and of the winter cherry.

The skeleton being obtained, the appearance is greatly improved by bleaching. Prepare a solution of two tablespoonfuls of liquid chloride of lime to one pint of water. Plunge the thoroughly-cleansed skeletons

therein, and let them remain until they are white; dry them on blotting paper, and then do some more; mount them tastefully, put them under a glass, and you have one of the most interesting occupations for your spare time we know of, and most beautiful presents for your friends, or elegant decorations for your own boudoir. You will exclaim with the poet—

"A thing of beauty is a joy for ever,"

especially when produced by your own hands; and may you, sometimes, add, thanks to the "FLORAL WORLD."

SUMMER-HOUSE AND GARDEN-SEAT.

SUMMER-HOUSES, like other things, should be adapted to their purpose, and peculiarly fitted for such a thing, always combining lightness with elegance.

the nearer they approach to this desirable end, so will their beauty be increased; beauty and utility being synonymous. The essentials are lightness, free circulation, but no drafts, protection from the burning sun, and the passing shower.

The accompanying design will probably be found to answer these wants. It is in the Moorish style, which is It should be of wood, with the perforated parts and copula of zinc or thin wood; the latter may even be made of hoops covered with canvas.

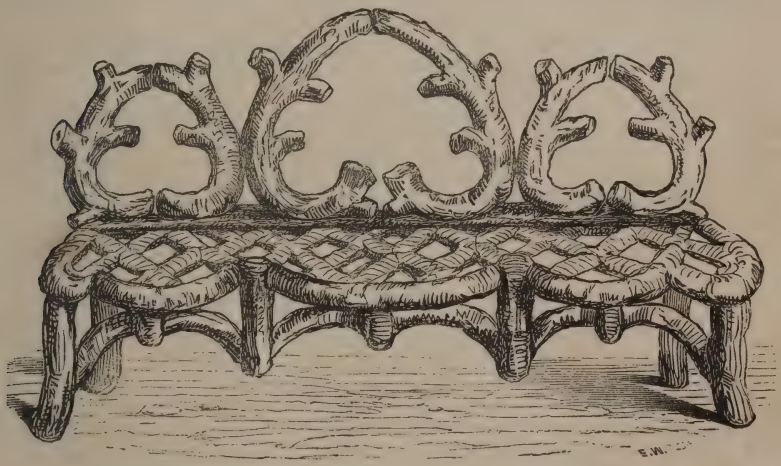
It may be painted a very delicate green, almost white, the dome either partially or wholly gilt, the interior of a light blue.

CLEMENT WHYTE.

Leith Walk, Edinburgh.

RUSTIC FURNITURE.

The reason why we so seldom see good examples of rustic furniture, is because the makers of this sort of work are, generally speaking, a set of miserable incapables. Take a turn anywhere about the suburbs of London at this season, and you will see, here and there on the roadsides, little collections of lop-sided, splay-footed, bandy, bow-legged, and broken-backed specimens of tables, baskets, garden seats, and little vases at the top of broomsticks, from any hundred of which a man of taste would find it difficult to select a single specimen that he could pleasureably put to use. Having no sense of



propriety, these carpentering geniuses work by the rule, that to be *rustic* a thing must be *ugly*—the uglier the better. They see beauty in swelled knees and cork-screw legs; they have yet to learn that a few rough loppings and gnarled branches are as capable of symmetrical arrangement, as if they were polished mouldings of satin-wood. But the customers are most to blame, for I suppose they do find people to admire their zigzags. What is there that somebody with more money than wit will not admire?

There is one matter of great importance to every one who dabbles in rustic work, and that is a proper choice of wood for the purpose. Oak is the leading material with most makers. It is gnarled and knotty, picturesque even to the last chip; but in my experience I have found it the very worst of woods when exposed to the weather. The summer sun searches into every fibre, and soon makes a ruin of any piece of furniture constructed of it, and it gets worm-eaten to such an extent as to resemble the bottom of a colander, and at last falls to pieces. Others may give a different verdict. The Oak I have had has usually come from Epping and Hainhault forests, and it really is a most miserable material. For tables and blocks of any kind that are required to be ornamental there is nothing better or more beautiful than Yew. It may be either varnished or polished, and either way its colour and veining are admirable, and it lasts for ever. For smaller work, and especially for the pet of baskets or other uses where light timber is required to come in contact with the soil, there is nothing better than the Locust tree, or false Acacia, a wood that proves brittle and chippy in all ordinary carpentering, but which never parts with its bark, or yields to the influence of moisture. For trellises to rustic arbours the crooked lop-

pings of old Apple trees are especially commendable, and every lover of a garden should, at pruning time, see that every suitable stick of waste timber is put aside for such a purpose—if not for his own use, then for that of somebody else who may need it. The hatchet makes short work with many a goodly pile of picturesque timber that would be inestimable for rustic work, but as it is generally somebody's perquisite it goes directly to the fire.—Shirley Hibberd, *in the "Cottage Gardener."*

PROFITABLE GARDENING.

CHAPTER V.—MANURES AND COMPOSTS.

I have already shown you how to get guano from the atmosphere, but you must not be content with that, but use liberal manuring. If the land is constantly well stirred and well cropped, you can hardly put too much on, so that your anxiety should be to increase your resources in this way. Be avaricious for manure, and always keep your mind in firm conviction that your ground is in an impoverished state. If you were to see what quantities of rich stuff they put on the grounds at Fulham, and the few other choice spots near London that show the finest market gardening in the world, you would think it actual waste until you also saw the grower's books, and found, that from a single acre of ground, he would realize from a hundred and fifty to three hundred pounds per annum for produce, and that at market price, too.

Now, you know, of course, that stable dung is one of the best manures that can be had, and your only regret is, that you can't get as much as you should like. Now, let me ask you if you do not allow the daily waste of the most fertilizing substances that can be had, equal in every way to stable dung, and that to preserve would cost you nothing? Men who can't see an inch before their noses, call it "theory," when you tell them that ammonia, potash, soda, salt, and other chemical principles are essential to the fertilization of the soil, but the gardener, who is not dead set against improvement, calls it "practice" to lay his hands on every possible source of such ingredients, and it is only necessary to remember, that whatever will putrify and become obnoxious if exposed to the air, loses all its obnoxious qualities the moment it is mixed with the soil, which is a natural deodorizer, and all such substances are powerful in stimulating and feeding vegetable growth. You have, therefore, one source of the very best manure in the household, and you must treasure every scrap of stinking rubbish, solid and liquid, and not waste so much as a dead cabbage leaf.

Let us consider the solid manures first. The dung of animals, and, especially, of the horse, cow, pig, sheep, and goat, is highly prized. When well decayed, they ameliorate the soil, improve its texture, and enable a crop to withstand drought for a longer time than in soils that have not been manured. All the cabbage tribe delight in abundance of dung; celery and onions are very poor without it, and there is scarcely any kitchen crop but likes to root in a soil in which dung has been well mingled. Now, stable dung is much valued by gardeners, but cottagers are often wasteful of it. It is good to let it rot well, for if put on green, it is apt to foul the soil, but the dung-heap should not be carelessly made up, so that every shower may wash its goodness out, and every hot blaze of sunshine burn it to powder. Make up your dung-heap in the style of a rick, and put a layer of stiff soil over the top, to shut in the gases. It is a good plan, when dung is wheeled in, to stack it in alternate layers with vegetable refuse, sawdust, straw, or even earth; these substances absorb many of the gases which would escape from the heap, and become almost as enriching as the dung itself, and by laying up with a ridged top and a layer of earth over all, the rain is thrown off without

soddening it, and the gaseous matters cannot so readily escape. On many highly cultured farms, the compost heaps are all kept under cover, exposed to the air, but sheltered from rain and sun, to economise the many volatile ingredients which are so soon lost if the heap is thrown together anyhow and left to the free action of the weather. Then, again, it is common enough to see dung wheeled on to ground and left in little heaps for weeks, and, perhaps, heavy rain falling all the while, so that, though the rain may wash a great deal of it into the soil, still very much of it is wasted, and the most valuable properties of it are those that dissolve most easily. Except in frosty weather, manure should never be left in this careless manner. Wheel it out in dry weather, and dig it in at once, that the soil may absorb from it what would otherwise be wasted; for ordinary vegetable culture does not need the manures so thoroughly rotted and refined as is necessary in the culture of flowers. Whatever domestic animals are kept—and a couple of she goats, a few fowls, a cow, rabbits, pigeons, are all useful appendages to a garden—should be made to contribute their quota of manure to the ground. Waste not a bit; keep your animals clean, and, as fast as you can fill a barrow, wheel the stuff at once to your heap, and keep on increasing that at every opportunity. On the question of rotting dung, I may just note, that for three years past I have been in the habit of using dung much less rotted than is usual; in fact, it has been dug in at once whenever it was possible to do so, and having been supplied with goats' dung sufficient for my small kitchen garden, I have brought the ground to a high state of production without forming any heap at all, except on a small scale, and for special purposes. But then, I take a crop of cabbage, cauliflower, lettuce, celery, or some other rank feeder from the ground so manured, and follow these with tap roots, potatoes, and other things that do not like fresh manuring, giving no manure at all when these are planted, and the result has been satisfactory, for the first crop rejoices in the abundance of manure, and by the time it comes off, the ground is mellowed, the manure decayed, and well mixed with the soil, and all is in a sweet, rich condition for the crop that follows. In a regular system of cropping, this is easily managed, without fear of injury to anything.

Among other solid manures, night soil and guano may be noticed. The first is a very powerful fertilizer, and can still be had in many country districts, though our big towns are all busy in devising schemes to waste it. London, especially, might contribute to the soil around her, manure worth two millions a-year, yet the Boards that manage these things, are busying their wooden heads to throw it into the sea. Mr. Schubler thus estimates the relative value of night soil:—

"If a given quantity of land, sown without manure, yields three times the seed employed, then the same quantity of land will produce five times the quantity sown when manured with old herbage, putrid grass or leaves, garden stuff, &c.; seven times with cow-dung, nine times with pigeons'-dung, ten times with horse-dung, twelve times with human urine, twelve times with goats'-dung, twelve times with sheeps'-dung, and fourteen times with human manure, or bullocks' blood; but if the land be of such quality as to yield without manure five times the quantity sown, then the horse-dung manure will yield fourteen, and human manure nineteen and two-thirds the sown quantity."

To prepare night soil for use, first mix it with quicklime, or plaster, or chloride of lime, to destroy its disagreeable odour. Then spread it in a thin layer on a bed of sand during dry weather. Put a layer of sand, or poor mould, or the remains of a heap of burnt turf over it, and, in the course of a week, turn it over and lay it up in a ridge again, covering it with charred refuse, or earth. It will speedily dry and pulverise, and may be either dug in where a crop is to be planted, or delivered into the drills with the seed. For any of the cabbage tribe, onions, celery, potatoes, seakale,

and asparagus, it is a valuable manure, and used in a moderate amount, there is scarcely any garden crop but will thrive in it.

In using guano, mistakes are frequently made. In the first place, the quality differs so much in various samples, that one may arrive at very different to another's conclusions as to its fertilizing power, owing to the two having used guano of very different quality. But the best Peruvian should never be used in quantities of more than three hundred weight per acre. It is the most stimulating of all known manures. In experiments made by Mr. Maund, guano dissolved in water, four ounces to the gallon, and administered once a week to strawberries, rendered them very vigorous and productive, but sprinkled on some young seedlings of the same fruit, killed them. Two ounces per yard, which is equal to five hundred weight per acre, were sprinkled over onions, and they doubled in size those that had not been so treated. With potatoes, cabbage, and many other crops, the results have been equally surprising, and it is the settled opinion of the most practical men, that where injury has resulted from the use of guano, it has always been owing to the use of *excessive quantities*. When used dry, it should be mixed with sand or earth during fine weather. Make a layer of sand two inches thick, then sprinkle guano evenly over it, say a quarter of an inch thick; then other layers alternately, and a layer of soil on the top. When it has lain together a while, chop it down the side thinly, so as to crumble it all and mix it well, running it through a coarse sieve. Sow thin on the ground to be dressed, taking care of the proportions required. When it has been sown, it must be watered in, unless it soon rains. In both these cases its application is effective. The seed should be sown directly. In growing onions, very fine crops may be insured by preparing the seed-bed in this way.

There is one kind of manure much neglected by the cottagers, and that is green refuse, such as clearings of cabbage-plots, potatoe and pea haulm, &c., &c.; all such stuff should be dug in green as soon as a heap of it can be collected. It loses much of its value if allowed to rot in a heap, but if trenched in while quite fresh, it soon decays and mixes with the soil, and may be planted over at once. In dry barren soils, a heavy dressing of vegetable refuse is not only enriching, but preservative of moisture to roots of plants.

Most gardeners have a prejudice against salt, but it may be used in moderation on almost any soil, and with almost any crops, and with none but good results. From having used salt largely, I can say with confidence that the objection that it "ruins the ground," is quite absurd. It is one of the best of manures for broad beans, asparagus, seakale, lettuces, onions, carrots, parsnips, and potatoes, and I should advise every grower of edibles to sow the whole garden every March with salt at the rate of five bushels to the rood. Salt and soot mixed in equal quantities, and applied at the rate of six bushels to the rood, will produce very heavy crops. Wood-ashes and coal-ashes are also useful in their way; the first, especially, makes a first-rate top-dressing, if stored away all the winter in a dry shed, and used as a top-dressing in spring. I generally have an old hogshead filled during the winter, and use it to dress the rows of peas, and lettuce, and the seed-beds of cabbage, and other things, for it not only nourishes the crop as the rains wash it down into the soil, but it checks the ravages of vermin, for most insects detest it. In dressing peas, the wood-ashes should be sprinkled over the herbage as well as on the soil soon after they are out of the ground; then, when they come to be earthed up, the ashes are buried, and every shower carries down some of their solvent properties to the roots. Coal-ashes should be used cautiously. If many rough cinders are mixed with them, they do more harm than good.

There is another way of using the rubbish advantageously, and it is this. Provide a hole, well lined with puddled clay; into this put daily all your soft vegetable refuse, waste kitchen stuff, and house slops. Whenever you burn weeds, or sticks, or clay, add the ashes to the heap. Carry to it all the leaves

you don't want for leaf-mould. After lying five or six summer months, take it out, turn it well over, and begin a new heap. In six months more it will be good manure. You may hasten its decay and improve its quality by adding gas-water from the gas-works, if they are near. Do not add old tan, which ruins a "mixen," unless you burn it, when its ashes become as valuable as other wood-ashes. If the heap becomes offensive, you must either add peat charcoal, or cover it with earth.*

Among liquid manures, there are many substances that may be made available. Liquid manures have been fashionable of late, and will certainly come more and more into use every year, for, if judiciously applied, they are far more effective than any dressings of solid material. Guano dissolved in water, in the proportion of half an ounce to a gallon, may be used to almost everything in a kitchen garden, and especially to any crop which requires to be grown quick for its succulence; celery and lettuce especially. Onions like it in a liquid form, and make splendid bulbs if indulged freely with it, and it may be used in preparing seed beds, as advised by Mr. Glennie, thus:—Suppose we are about to sow a bed of onions, say of one rod, two pounds of guano, which is at the rate of nearly three hundred weight to the acre, should be dissolved in sufficient water to go over the said rod of ground, which should be previously fresh forked and levelled. It can be applied with a common watering-pot, and distributed evenly over the surface in the evening; and having done this, the next thing would be to water it with plain water, unless it rained in the night, and this washes the guano down a little deeper; then, as soon as the surface is dry enough, sow your seed, tread it in hard all over the bed, rake it in, and roll it, or pat it down with the spade. The application of guano is very efficacious if the land be at all poor. But the house will furnish you all the year round with abundance of liquid manure of the very best kind. Have one or two large pails or watering-pots of zinc, made with close fitting lids, and into these let all house slops, soap-suds, the water in which meat and vegetables have been boiled, in fact, everything in the way of liquid refuse be poured daily. When there is an extra quantity, as on washing days, be on the alert that it is not sent down the gully hole, and use it slightly warm to any crops that you want to grow particularly fine. The ordinary slops may be diluted in dry weather; but in rainy weather it is best to use them as you get them. Cabbages, celery, lettuces, and onions are just the things to take it thankfully, and you can hardly give them too much. If you purpose to make a general heavy watering at any time, let this stuff accumulate for a few days, and then mix a little of it with every can of water. For a few day before cutting any crop, discontinue the use of liquid manure, and water with rain water only.

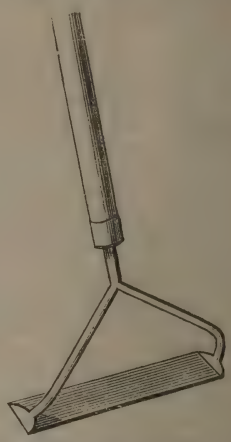
BLOOMING OF PAWLONIA IMPERIALIS.

Several instances have occurred this season, of the blooming of this noble, deciduous tree, which proves quite hardy where the position is good, and shelter afforded from cutting winds in spring. One planted upwards of twenty years in the cold climate of Stubton Court, has attained to a height of thirty-five feet, with a circumference of ninety-five feet, and this season burst into bloom for the first time. At Lyncombe Vale, Bath, in the nursery of the celebrated James Kitley, a specimen planted sixteen years ago, this season produced two hundred spikes of blossoms, each having sixteen blooms. At Bryanston, Dorset, in the grounds of Lord Portman, is a pawlonia, thirty feet high, with a circumference of ninety feet, which produced flower buds last year, and was protected during the winter, with a covering of six hundred yards of canvas. In May this was removed, and, on the 20th of the same month, the first flower opened, and gradually, the whole tree became covered with the elegant blooms peculiar to it.

* "Agricultural Gazette."

HOEING AND MOWING.

These two important summer operations tax the physical powers severely—perhaps, more severely than any other kind of field or garden work. But, whether performed by labourers used to such work, or by a person whose hands it would not be seemly to have covered with corns and blisters, the work itself must be done well, and frequently repeated. Among growing crops the hoe is of most essential service. Not working deep, it does not hasten the evaporation of moisture from the roots of plants, as digging near them would be sure to do at this time of year, but it leaves the surface in a pervious state, so that a small shower would find its way down at once to the roots of the crop; whereas, on hard sun-baked soil, it would all run off, and not a drop remain for the benefit of things in need. Then, as a weed-destroyer, the hoe is of great importance. A little two or three-inch onion hoe, worked regularly among rows of rising crops in early summer, would pretty well clear off the whole of the weeds for at least that season; but it is rarely people have the courage to begin hoeing till weeds have risen in great strength, and threaten to spoil the crop by drawing it and exhausting the ground. Then the hoe comes into play, and if the ground is at all hardened, and the ridges levelled down some time before, it is fatiguing work, and soon blisters the hands of any one not daily accustomed to such manual labour. But the grand thing is to have a proper tool for whatever work is to be done. We have a somewhat large collection of tools and implements, purchased at various times and places, and amongst them a variety of hoes. The common hoe is a fair tool enough for hoeing up cabbages and potatoes, dressing seed beds, and such light work on loose ground; but try a piece that has been a bit trodden over, and is now covered with a luxuriant crop of plantain or groundsel, and what sort of an implement is it? Ten to one you loosen it from the handle, break it in the socket, put it out of gear, or, before you have had time to over-task the implement, leave off in disgust at finding your hand bleeding. Between the thumb and forefinger you will doubtless have an awkward gash that will take a fortnight to heal over—all owing to the implement being of the wrong shape, wrong size, and wrong weight. If you had had one of Gidney's Norfolk hoes, which has the blade set at an angle, the task would have been easy. Lately, we made a trial of several hoes, on a piece of ground that for years had been overgrown with the great bindweed or white convolvulus. Any ordinary hoe was useless; the stuff seemed to grow all the stronger for being so gently topped; the Dutch hoe was too much work, and could not be used at the further side of the piece for want of power to work it at that distance. We thought at once of two famous hoes—the Draw Shave and the Canterbury. The Draw Shave hoe is the invention of the celebrated Sigma, and is sold by Mr. Powell, of Hurst Green, Sussex. It is a powerful



instrument, in which the principle of a thrust hoe is reversed: it is of considerable weight in its action, though light enough to the hand in use; and the blade, set inwards at an angle, a trifle more acute than 45 degs, is of steel, terribly sharp, and well braced to the handle. The one we tried measures nine-and-a-half inches in the blade, mounted on a handle 4 feet 6 inches in length. With this instrument, we find, we can make a clean cut of five feet long with a most trifling amount of exertion, and, as the hoe is drawn towards the operator, it shaves the whole surface so as literally to cut off a top slice, and leave the slice behind. In fact, the blade passed under the surface and cut every weed through at the root, but left that surface just as it was as to level: there is not a crumb thrown aside. It is the most effectual cutting hoe we ever took in hand—thanks to Sigma, who, to render it an auxiliary to his corn-planter, makes it up to fifteen inches wide, to take the whole space between two rows of turnips, and enable a man to clear an acre and a half or two acres in a day.

The Canterbury hoe is not a cutting but a clawing hoe; it tears and tugs, and is

rather awful to look at. Spite of that, however, we regret we did not have it engraved, and must do so for next month. It consists of huge claws instead of a blade, and tears up weeds by the root wholesale.

In the way of mowing there are many improvements, and Green's lawn-mower proves to be the perfection of them all. But a poor man must still trust to the scythe, and pretty work is mowing, though trying to the strength of those not used to it. The old-fashioned scythes are fast being displaced by improved instruments, and of these we ought to name at this mowing season of the year at least three, two of them Boyd's, and one Otway's. The cheapest of these is the

Fig. 1.

Vulcan, or poor man's scythe, sold at 4s. 6d.; the other two are folding and adjusting scythes, and are sold at half-a-guinea each. There has been a little contention between the inventors as to respective merits; we pronounce them very much alike in construction and excellence. Boyd's we know to be a first-rate implement, but Otway's is the one we habitually use, and for that reason have chosen it for illustration—not, however, we hope, to the prejudice of Boyd's.

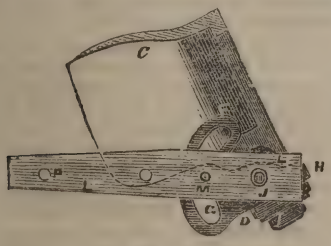


Fig. 2.

The objects attained by both are, that the blade may be set at any required angle with the ground; the position of the blade, with respect to the handle or snath, may be altered and fixed in any position desired; and, thirdly, the blade will fold and lie in a line with, or be protected by the handle, for portability.

Fig. 1 of the annexed engravings represents the scythe complete and folded. A, is the snath; B, B, are the handles mounted thereon; C, is the blade, which has a portion of the heel, D, turned up at or about right angles to the blade; in the end of the turned-up portion, D, an eye is formed. The several parts are better seen in figs. 2 and 3, which are different, and detatched views of the jointed parts. Fig. 2 is a plan of a portion of a scythe blade with the parts for fixing it to the snath attached thereto; fig. 3 is a view of the same looking towards the heel of the scythe from behind.

To set the blade, C, in a proper position relative to the snath, A, and to the surface of the ground, the screws, I, and M, are unscrewed, the blade is then at liberty to be moved into the position required, when the screws, I, and M, are tightened, and thus the snath, and blade are secured as they have been set. When the scythe is not required for use, both the screws, I and M, are unscrewed until the blade, C, is capable of receiving a vertical movement on the screw, I, and likewise the blade, C, and quadrant, F, a horizontal movement on the

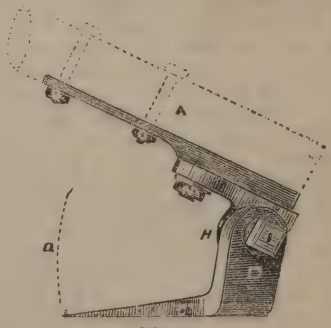


Fig. 3.

pivot, J. The blade, C, is then made to approach the snath, A; the screw, M, thus traverses in the slot, G, until the blade and snath, assume the position shown in fig. 1, when it is more easily and safely carried from one place to another, and also more readily stowed away. Messrs. Dray and Co. are the agents for Boyd's, and Messrs. Burgess and Key for Otway's, the one here figured.

JULY WORK IN THE GARDEN AND GREENHOUSE.

The garden is now in its full glory, and will continue gay till October. July is generally a wet month, and the trying task of watering is suspended for awhile. The past month was a trying one to bedding stock, for a long drought followed the time of putting out, and compelled the use of the hose and water-can. This matter of watering is one much less understood than it should be; but the more it is understood the lighter becomes the labour. As a rule, water should never be given, until the further withholding of it would be detrimental to the plants. *Habitual* watering does, in the majority of cases, more harm than good. Plants left to battle with drought, send their roots down deep in search of moisture, and when rain does come, they benefit more by it than those that have regular waterings all along. If the ground is dug deeply, and kept in good heart, plants that have once got established, will bear drought for almost any length of time, but things lately planted, and that have not had time to "get hold," must be kept supplied, or their beauty may vanish for half the season. Succulent vegetables, too, which ought to be kept growing quick, must have abundance, and of course, plants in pots must, of necessity, have sufficient. There are two important points to be attended to in giving water, one is to expose the water to the sun before using it, to render it soft and warm, and the other is to give a thorough soaking at once, sufficient to keep the ground moist a week. Supposing the supply to be limited, but regular, the best way of economising both water and time, is to take the garden, piece by piece, watering each piece thoroughly every evening, and then beginning again as at first. Surface sprinklings bring the roots to the surface in search of the moisture, which, when they reach it, is insufficient to nourish them, but, on the contrary, causes exhaustion, by inducing the growth of fibres within reach of the burning rays of the sun. Plants in pots, in windows, and on gravel paths, are very much tried by the heating action of the sun, and to keep their roots cool, it is advisable to drop the pots into larger ones, and fill between the two with moss. This is the proper way to use ornamental pots, and the dressing of moss may be made to hide the inside pot, which contains the plant, by arranging it neatly over the surface of the soil.

Kitchen Garden.—Where early crops are coming off, clear the ground and dig it over at once; it is a folly to wait for the last handful of peas or beans. As soon as the rows cease to be profitable, destroy them, and clear the ground. Dig deep, that the heavy rains now to be expected, may sink deep, and plant out Brussels sprouts, green collards, kail, savoys, cabbages, broccolis, &c. If the plants are crowded in the seed-bed, it is best to get them out at once. Have all ready, and in the evening put out as many rows as possible, and give a little water to every plant. Next morning lay a few boughs or mats over them, to shade off the sun, and the next evening get out more, till the planting is finished. This is better than waiting for rain, which may be so heavy as to render the ground unfit to be trodden on, and, if succeeded immediately by heat, the plants will flag as much as if put out in dry weather, whereas, being already in the ground, the smallest shower benefits them. Seed-beds for winter spinach should now be made up and well manured, and the seed got in without delay. Strawberry-beds now want special attention. Strong-rooted runners should be taken off, to form new plantations, and be pricked out into well-manured beds, pretty close together, to strengthen, preparatory to making new beds in September. After three years, strawberry-beds cease to pay, and should be broken up, and the ground trenched for winter crops. Peas and kidney beans may be sown this month, for late supplies, and at this season it is as well to sow early as well as late sorts. Bedman's Imperial, and Knight's Dwarf Marrow, are good peas to sow the first week this month, for a supply very late in the season; but Emperor, Sangster's Number One, Daniel O'Rourke, and other of the earliest sorts, often prove useful, and are soon cleared off the

ground. The best way to grow peas now, is in trenches. Take out the trench a depth of two feet, lay at the bottom six inches of rich, half-rotten dung, then fill up to within nine inches of the surface, and tread over. Then sow, and cover with two inches of mould, and bank up the sides of the trench, so that the peas will grow in a sunk alley of about six or eight inches depth. At each end of the alley, close it in with a spadeful of earth, so as to make a trough of it. As soon as the peas are up, sprinkle them plentifully with soot or wood-ashes; stick directly, and then every evening in dry weather, you can fill the alley with water, alternating twice a week with manure water, and the crop will come wonderfully fine. This plan is the one we always adopt after the beginning of June, and we have for years had healthy rows of peas, and abundance of produce, when, elsewhere, the heat has turned them yellow before their time, and the gathering has scarcely paid for the seed. The method is not so troublesome as it appears, for the filling the trench with water is but a few minutes' work, and being sunk and closed at the ends, there is not a drop wasted.

Gather kidney beans close; every pod left to ripen checks the productive powers of the plant. Gather peas with great care, using a pair of scissors where time can be spared, rather than the clumsy way of pulling them with the hands. Take up onions, shallots, and garlic, as they ripen, and store for winter. Give asparagus-beds plenty of liquid manure, and use the grass mowings from the lawn as mulchings, to prevent the soil from cracking. Earth up celery for early use, but the rows that are not forward must be kept open and well watered, as the plant grows very slowly after being earthed up, the object of the earthing being to blanch it only. Sow saladings for succession. In the fruit garden, thin out foreright shoots, and admit light and air to the wood required to ripen for next season. Keep gooseberry and currant bushes open in the centre, and leave on the bush fruits only as much wood as will bear a fine crop next season. Cuttings of gooseberries and currants may be struck now in a moist shady border, and if sufficient canes were not got in last winter, the deficiency may now be made good, and a season be saved.

Flower Garden.—Budding is the most important operation this month. After heavy rains is the best time, and the operation should be performed at dawn or after sunset; but early morning is the best, as the sap then flows freely. The stocks should be vigorous, and if the weather continue dry, and if the sap flows slowly, a drenching of liquid manure or plain water, for two or three nights in succession, will prepare them, without waiting for rain. Cuttings of all kinds may now be struck out of doors; antirrhinums, phloxes, pentstemons, alyssums, dielytras, &c., and cuttings of laurels, aucubas, and other shrubs, must be struck in the shade; but geranium cuttings should be struck in the full sun, and the sooner they are got in the better plants will they make to stand the winter. Where long ripe branches of geraniums can be spared, they are better than soft shoots; and, if pinched for time, strike a lot of such ripe branches in five-inch pots, half-a-dozen in a pot, put all round, and they need not be potted separately till spring, when started for bedding out. Our best lot of Queens' Reidiis, Commanders, and Tom Thumbs, were struck this way last summer, to save the time of taking up and potting in autumn. In February they were started into growth, then potted into sixties, and turned out in May—a course of treatment attended with the least possible amount of trouble. Dahlias want special attention now as they come into bloom; earwigs are very destructive to them, and must be trapped with bean-stalks, or a handful of hay may be stuffed into an empty flower-pot and put on a stake, and the vermin shaken out into salt and water every morning. Edwards' earwig trap, sold by Mr. Edwards, of Paul's Square, Birmingham, is an admirable invention for the dahlia grower, because most effectual as a trap, and obviating the use of all those ugly contrivances which deface many gardens where dahlias are grown.

Greenhouse.—Pelargoniums done blooming must be turned out, but with the pots plunged in tan or ashes, and the plants sheltered. After a week's exposure, cut them in to the first or second eye at the bottom of each shoot, and place them in a cold pit, to make their new growth. They must now, for some time, be kept from growing rapidly, and have but little water. When they have broken well, they must be repotted into the smallest pots their roots can be got into, and all the old soil must be shaken of, and the roots moderately thinned. Shift all greenhouse plants required for late blooming, and grow them on to a good size before allowing them to blossom. Cinerarias for winter blooming must have good culture and shifts as required, and camellias may be shifted, if necessary, but, if well potted in the first instance, they will flourish in the same pots for three seasons in succession, and to overpot them is to do them injury, from which they may never recover.

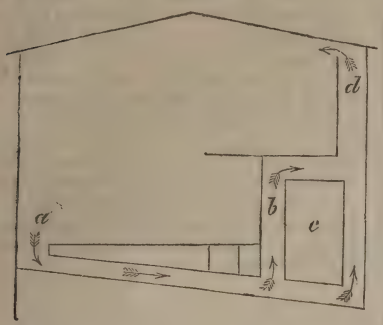
STOVE.—As pines colour, they should be kept moderately dry. Plants shy of fruiting should be kept dry for awhile, to cause a check, and then be liberally soaked, and kept warm and moist, and the new growth will result in the production of fruit. But to check them before they are well matured may cause premature fruiting, and should not be done until the plants have had a long course of liberal culture. Young stock must be encouraged to grow strong, by allowing plenty of room in which to expand their leaves; give plenty of water, and repot as necessary. In vineries great attention must be paid to keeping the foliage healthy to the last, as on this depends the maturation of the buds that are to fruit next season. Keep up a moist atmosphere, and watch vigilantly against red spider. Plants heavily laden with fruit must have the assistance of strong manure water. Be careful not to cut away laterals too freely, as they are most useful in helping the maturation of the bunches.

TO CORRESPONDENTS.

ROSES ROOTED IN WATER—ROSES FOR GREENHOUSE CULTURE.—*E.*—You are, perhaps, not aware that, to root cuttings in water is now a fashionable practice, or, rather, a practice largely adopted by experienced growers. There is scarcely any plant that comes from cuttings but will come quicker and with less trouble, both while rooting, and for potting off in sand and water, than in any kind of compost. We rooted lots of verbenas, geraniums, heliotropes, and other bedding stuff this spring in pans of sand and water in a Waltonian case. It was done for experiment only, and to settle points that need not be entered on now, and, as the plants, when rooted, were not wanted, they were thrown away. Your roses, if really well-rooted, may all be "transferred to the earth" without the loss of one, but you must not transfer them to earth out of doors, but to earth in pots; and in this manner make ready a lot of small sixties, with crocks in the bottom, and two-thirds filled with old leaf-mould and powdery dung; then make ready a mixture of peat and silver sand run through a fine sieve; throw a pinch of this mixture into each pot over the compost with which you have partially filled them, and then proceed to "transfer." Take a cutting in the left hand, and place it tenderly in the centre of a pot on the sifted peat and sand, and let the tender roots range regularly on it without breaking one. Hold the cutting upright, and with the right hand sprinkle the peat and sand regularly over the roots till the pot is brimful to the edge; then press with the thumb, very tenderly, to fix the stem in the centre, and, with the finest rose-water pot you have, give the plant a sprinkling over head, and enough just to soak through to the roots. If the plant hangs loose at the collar, wedge it up on each side with a small crock, for it will hardly bear to be pressed tight, and at once place it in a cold frame on coal-ashes, or tan, and shut in close and moist. Finish the potting and framing of each one separately, so as not to have any of them laying about even for a few minutes. The after treatment is simply to keep them close and moist, and at the end of about ten days, to press them a little firmer, and a week after, press them in again, and from that date, your roses are safe. Moss and Provence roses for greenhouse culture, are usually preferred on their own roots, but Teas, Bourbons and Perpetuals are worked on the Manetti stocks. Many strong growing kinds, especially of Hybrid Perpetuals, are worked on short briar stocks, the bud being put in close to the collar, so that at the next potting it is scarcely visible. With the exception of rampant growers, such as Multifloras, and some of the Noisettes, there is scarcely any rose but may be grown in a pot. The most prized, however, are Teas, Bourbons, and Hybrid Perpetuals. Among the Teas take the following eight:—Devoniensis, Adam, Comte de Paris, Niphetos, Saffrano, Gloire de Dijon, Madame Willermorz, and Duchess of Kent. Among Bourbons, Du Petit Thouars, Louise Odier, Sir J. Paxton, and Souvenir de Malmaison; the last is the finest for pot-culture that we have. The following twelve perpetuals are first-rate for pot-culture:—Jacqueminot, Baronne Larray, Baronne Prevost, Duchess of Sutherland, Geant des Batailles, Leon des Combats, Madame Laffay, Mrs. Rivers, Mrs. Elliot, William Jesse, Jacques Lafitte, and Lord Raglan. The grand secret in growing roses in pots is to grow them so from the first. A rose taken up and potted never makes such a plant as one grown from a cutting and never put out. At the first potting, the pots should be very small so as to allow of successional shifts; the soil should be loam, leaf-mould, and old hot-bed dung in equal parts, with a little sand, and, after the second shift, room should always be left for a layer of rotten dung as a top dressing. To get fine plants, every bloom bud should be nipped off till the plants are strong and bushy. Plenty of air, plenty of light, and plenty of water are the three leading conditions of success. In number six of "Garden Favourites," there is a chapter on the pot-culture of roses, which will thoroughly initiate you.

AZALEAS DONE BLOOMING.—*Rose.*—First take off the dead blooms, and seed pods, and clear away the remains of the flowers that cling about among the stems. Then give them a good syringing, and put them in a warm close place; syringe frequently till they have made new growth. Then give air by degrees, and at the end of a fortnight, put them under a north wall or fence till autumn, and, before frost comes, get them into the house and give water only moderately. They should be just kept from frost, and in no way coddled, but may have extra warmth and moisture when about to flower. A light airy house with south, or south-east aspect, with a ridge and furrowed roof, and means for breaking the sun's rays; morning and afternoon is the best for roses. The grand thing is to ensure plenty of light, and means for the freest ventilation; with these requisites, any kind of house will suit. The mean temperature from December to January should be 45°, and about February to rise from five to ten degrees for early blooms. Messrs. Lane, of Berkhampstead, grow their choicest pot roses in a span roofed house, sixty feet long, twenty feet wide, and nine feet high, glazed with sheet glass in large panes so as to admit plenty of light. It is heated Polmaise fashion, but with some modification, and a rapid circulation of air is kept by means of a double flue. In the woodcut this house is represented. The cold air descends to a drain at *a*, and rushes to flue, *c*, which communicates

with a furnace outside, fed with Welch lumps. This flue terminates at the other end in an upright shaft. Round this flue is a hollow casing, *b b*, by means of which the current of air is made to circulate round the flue before ascending by the openings, *d*, to warm the house. The pots are plunged to the rim in sawdust, in a brick pit along the centre of the house, and require but little attention beyond securing for them a sweet and constantly circulating atmosphere.



Pear Trees Failing.—*H. N. O.*—There can be no doubt your trees have sent their roots down into an ungenial soil, and are touched with premature decay. When you cut in the roots, you should also have mulched the surface round the stems with rotten dung to induce a growth of surface fibres close home. If the trees were ours, we should cut close in a selected number of branches this season to get breaks next spring; this would produce a new set to be regularly laid in, and next year we should cut in another lot, and so renew the whole of the wood in the course of time. We should, also, this next autumn, plant new trees in the mid spaces, if there is room enough, or if room could be made by cutting in for the purpose, and the planting should be on platforms made by taking out the soil, so as to form a square three feet from the tree each way, and three feet deep. A layer of brick-bats, stones, chalk, cinders, or any other kind of paving material is then to be thrown in a foot deep and rammed hard, and the hole filled with good loam without manure. This should be done early to allow the earth to settle well before planting. Something might be done towards promoting the formation of fruit-buds for next season by nipping out at once the point of every side shoot, and, of course, clearing away all superabundant growth. We give this advice in ignorance of the aspect in which the trees are planted, the nature of the soil and climate, and the position of the trees in respect to each other.

Melon Culture.—*A. B., Whitland.*—The amount of water given to young plants must depend somewhat on the amount of heat. If the heat is up to the mark—and it ought never to descend below 75° at bottom, and 65° atmospheric—quick growth may be encouraged from the first by liberal waterings, and frequent use of liquid manure. Before fruiting, we want a strong plant, and the melon is as thirsty as the rest of the gourd family. Good drainage is, however, very necessary. Water must not stagnate about the roots, hence, it is usual in ridging out, to make a bottom of brickbats, covered with a sod turned upside down, where the hillocks are to be. To say how many times a week any plant should be watered, would be to lay down too precise a rule; personal judgment must determine such a point, and, when we say, be liberal with water and heat, and stint the water when the fruit is near ripening, or, rather, withhold it altogether for ten or twelve days, and give plenty of air, you will perfectly understand how to proceed. Don't let too many fruits set on a plant, but cut away the blossoms after four to half a dozen are secured, and stop the fruiting shoots, three or four eyes beyond the fruit. Plenty of healthy foliage, and full exposure to sunshine, are of great importance in the production of melons.

Dahlia Culture.—*Scrutator.*—Dahlias should have only one stem each, and that staked in good time. If the plants grow very bushy, thin away a portion of the shoots; manure water once a week, not too strong, will do them immense good, and, while growing, they will take as much drink as you like to give them. But, bear in mind, if you once begin a regular system of watering, you must go on all through the season, except during wet weather, for watering brings the roots near the surface, and the plants suffer if supplies are stopped. We put a good spade full of rotten dung under every Dahlia to draw the roots down, and obviate the need of frequent watering. If your plants are troubled with red spider, dust them with sulphur, and then drench them well over head—the red spider cannot stand sulphur and moisture together. A dry leaf and a warm berth are the delights of this pest. Dahlia roots should be stored in a place free from frost and damp, but not so dry as to shrivel them. They should not be taken up until the frosts have destroyed the stems, and, to promote the ripening of the tubers, the plants should have very little water towards the end of the season. The best way of storing them is to lay them in wicker baskets, and cover with short dry hay, and place the baskets in an airy loft.

Agave Americana.—*C. B., Leytonstone.*—All the Aloes require a soil composed of rich loam, a little old dry chippy dung, leaf mould, and a good admixture of broken crocks, lumpy charcoal, and brick rubbish. The pots should be well drained with large crocks at the bottom, then a layer of smaller ones, and then some of the roughest of the soil. They are propagated by suckers, which may be taken off now if of moderate size, and struck in sandy peat and loam with bottom heat. They like sun, and during the summer, plenty of water; in winter, very little, or none at all. Broken leaves may be cut off close with a sharp knife, but, the less the plants are cut or injured, the better. Do not shift to larger pots unless the pots are already full of roots, but, if they really require more room, shift at once without breaking the ball, and give plenty of water and shade for a week. When growing, an occasional sponging of the leaves with soft tepid water will do them good, but they must not be exposed to sun while the foliage is wet.

Out-door Vine. — *J. D.* — If you want fine bunches, thin them regularly, removing the bunches entirely where they are crowded together, and thinning out the berries in the branches with a small pair of scissors to allow them to swell. The best fruit is that which ripens under the shade of the leaves, but, if the vine is over crowded, it will benefit it to remove a moderate number of the laterals. Read carefully an article on the "Vine," in No. 2 of the "Floral World," and you will easily comprehend how to manage a vine in the open air. If wasps are numerous in your district, you would do well to provide yourself with a sufficient quantity of Haythorn's hexagon net to protect them when they begin to ripen. The year before

last, the wasps robbed us of three hundred bunches, the value of which would have paid for the netting, which is useful at all seasons for all sorts of purposes, shading, protecting, &c. We do not know of any separate treatise on the Passion Flower.

Bee Keeping.—*W.*—The hive you enquire about is the invention of Mr. Tegetmier, of Muswell Hill. It has a set of bars which are moveable, or fixed, at the pleasure of the bee keeper, so that the hive may be moved any distance without breaking the combs, and any individual comb may be lifted out at pleasure. The "Indicator Bee Stand," invented by Mr. Hibberd, and to be seen at 5, Barbican, London, shows the daily increase of honey in the hive without the necessity of moving or even touching it—as its name implies, it is literally "self-indicating." You must not suppose we have no love for bees because we give them no place in our pages; on the contrary, we count them among the most precious of our garden favourites. The best book on bee keeping is Taylor's.

Cacti.—*H. W. B., Wells.*—Your flower came to hand quite crushed and mouldy, as might be expected of so fleshy a thing sent unprotected in a common envelope. We could not even lay out a few petals to judge of it. The Cactus proper is now classed as Melocactus; Epiphyllum is ranged under Phyllantheæ. Epiphyllums produce leaf-like branches, on the edges of which the flowers are borne; in Cactus the growth is globose and furrowed. A botanical genius is wanted to set the whole of the Cactus family in order; at present, it is almost impossible to convey an idea of the several divisions by written descriptions.

Books on Botany—*J B.*—Hogg's "Vegetable Kingdom," is the best and cheapest work on the families of plants; Lindley's "Vegetable Kingdom" is a fine book, but more expensive than Hoggs. Lindley's "Ladies Botany," and Mrs. Loudon's "Botany for Ladies" are also admirable works for beginners of either sex. Your plant is *Glycine sinensis*.

METEOROLOGICAL CALENDAR FOR JULY.

31 DAYS.		WEATHER NEAR LONDON, JULY, 1857.					31 DAYS.		WEATHER NEAR LONDON, JULY, 1857.				
		BAROMETER.		THERMOM.		WIND.	RAIN.		BAROMETER.		THERMOM.		WIND.	RAIN.
		MAX.	MIN.	MX.	MN.	MN.			MAX.	MIN.	MX.	MN.	MN.	
Th.	1	29.941	29.690	74	50	62.0	NE	.04	S.	17	30.117	30.014	80 51 65.5	SW	.00
F.	2	30.012	29.991	71	45	58.0	N	.00	S.	18	30.181	30.162	79 50 64.5	SW	.00
S.	3	30.012	29.972	70	55	62.5	SW	.10	M.	19	30.147	29.969	86 48 67.0	SW	.00
S.	4	29.850	29.809	67	55	61.0	SW	.11	Tu	20	30.026	29.951	81 47 64.0	W	.04
M.	5	29.815	29.662	70	56	63.0	SW	.03	W.	21	30.070	30.003	77 58 67.5	SW	.00
Tu	6	29.735	29.638	67	45	56.0	SW	.31	Th	22	29 980	29.910	78 56 67.0	SW	.02
W.	7	29.957	29.890	65	42	53.5	W	.00	F.	23	29.972	29.934	81 57 69 0	SW	.00
Th	8	29.931	29.866	70	42	56.0	NW	.00	S.	24	29.960	29.809	81 57 68.5	SW	.00
F.	9	29.906	29 868	71	40	55.5	W	.00	S.	25	29 948	29.754	75 37 56.0	W	.00
S.	10	30.014	29.907	76	53	64.5	W	.01	M.	26	29.992	29.955	77 48 62.5	SW	.00
S.	11	30.181	30.011	77	46	61.5	W	.00	Tu.	27	29.944	29.864	76 59 67.5	SW	.02
M.	12	30.296	30.227	86	44	65.0	S	.00	W.	28	30.090	29.830	77 41 59.0	NW	.33
Tu	13	30.302	30.292	87	47	67.0	SW	.00	Th	29	30.151	30.114	80 44 62.0	SW	.01
W.	14	30.284	30.177	91	48	69.5	S	.00	F.	30	30.031	29.974	77 61 69.0	SW	·00
Th.	15	30.056	29.917	89	46	67.5	SW	.00	S.	31	30.051	30.008	82 52 67.0	SW	.00
F.	16	29.950	29.834	86	46	66.0	SW	.22							

AVERAGES FOR THE ENSUING MONTH.

Taking the averages of the last sixteen years the temperature of July is:—Max. 73°; min., 53°; mean, 61½°; being 3° higher than the month of June, 7½° higher than May; 20° higher than April; 23½° higher than January. The average fall of rain in July is 2.7 inches, exceeding the amount of any other month in the year; the average temperature of the dew point is 54, showing an immense capability in the atmosphere, to hold water in suspension, which is further shown in the fact that a cubic foot of air contains on an average, 4.6 grains of water, exactly double the amount held in suspension in the month of February. The highest temperature recorded in the month of July during the observations of the past thirty-one years, occurred on 5th, 1852—Thermometer 97°; and the lowest on the 9th, 1856—Thermometer 37°.

PHASES OF THE MOON FOR JULY, 1858.

☾ Last Quarter, 4th, 6h. 42m. a.m.
☽ First Quarter, 17th, 8h. 39m. p.m.
● New Moon, 10th. 9h. 24m. p.m.
○ Full Moon, 25th, 3m. after midnight

MEETINGS AND EXHIBITIONS, JULY, 1858.

Thursday, 1st, National Rose Show, St. James's Hall, Piccadilly; Brighton and Sussex Floricultural; Dublin Royal Horticultural.—Tuesday, 6th, Horticultural Society of London.—Wednesday, 7th, Stamford Floral Society.—Thursday, 8th, British Pomological, St. Martin's Hall; Dumfries Floral Society.—Wednesday, 14th, Whitby.—Thursday, 22nd, British Pomological; Sleaford Floricultural and Horticultural.—Tuesday, 27th, Handsworth (Birmingham).—Wednesday, 28th, Oxford.

*** *Secretaries will oblige by forwarding Announcements, Schedules, &c., of forthcoming Exhibitions.*

THE

FLORAL WORLD

AND

GARDEN GUIDE.

AUGUST, 1858.

HE Feast of Roses, held on the first day of last month, at St. James's Hall, Piccadilly, proved so great a success in every respect, that the rose-growing and rose-loving public will look for its annual repetition in the future, as one of the constituted features of the flower season. With so peculiar a subject as the rose, the importance of public competition was proved to demonstration, for not only was the spectacle of thousands of roses, of every variety of colour, fragrance, and habit, one of the most delightful that could be presented to the eyes of London, but to the connoisseur of the Queen of Flowers, the exhibition offered the best possible opportunity for the institution of comparisons, and the determination of the relative value of classes and varieties. After a long drought, accompanied with burning sun, many a skilful cultivator thought himself fortunate if he could find a dozen good rose-blooms in an extensive collection on the first of July last; but here they were brought together in thousands, and, with very few exceptions, their perfection of form and colour, and their general robustness, was such as, in ignorance of what the weather had been, would have compelled one to believe it the most propitious, instead of the most trying moment for the rose, that has occurred during this present season.

Rose growers have hitherto found it necessary to make seasonal visits to the nurseries, in various parts of the country, in order to select, while in bloom, such varieties as they might desire to add to their collections, and so various are the merits of some sections of roses, as climate and soil influence them for better or worse, that it has often been necessary for an amateur rose grower to visit a dozen different nurseries, in order to determine the actual merits of one particular flower. The annual migrations

of the rose grower will not cease to be indulged in, because those who love the Queen of Flowers, would not let the summer pass without doing her the homage of a pilgrimage to Sawbridgeworth, and Cheshunt, and Berkhampstead, and Slough, and Hereford, and Maresfield, and to such other spots as lie most within their range of journeying. But the absolute necessity for a rose-tour is now at an end; the leading nurseries in the country will annually pour their wealth of rose-blooms into St. James's Hall, and in less than an hour, the accustomed eye may arrive at decisions, which previously required weeks of persevering plodding from place to place, and was then not so satisfactory as a comparison at an exhibition, because the subjects of comparison were separated, by both distance and time, in the mind of the amateur. On the day of the Rose Show, the visitor could not only compare one rose with another, but the same rose with itself, as produced in different districts, and under various degrees of horticultural skill, so that old and new, good, bad, and indifferent, could be at once assigned to their proper place in the scale of relative merit.

This exhibition serves a yet more important purpose; it gives the key to the rose catalogues—those enigmas of horticultural literature, which have bewildered and confounded many a grower, to his serious loss. It may be fairly concluded that at least one half of the roses in cultivation, and occupying a place in catalogues, where their failings are not very minutely registered, may be got rid of, at once, and for ever, to the permanent profit of the amateur, and the good of the rose itself, as a subject of culture. The single, loose petalled, shapeless, and evanescent roses of our ancestors, have been pretty well swept away by the march of improvement; it now comes to the turn of many that have borne an adventitious fame in our own day, and are still classed with things of high excellence, to give place to subjects of proved merit. Yet more severely must the catalogues be thinned of these questionable beauties, and the amateur no longer deluded into the purchase, and the patient culture, of sorts that are incapable of making him a fair return. We have only to sustain this exhibition as it deserves to be sustained, to secure not only an annual Feast of Roses, in itself worth the cost, but also a fair field of competition, in which merit is sure to triumph.

The committee of the National Rose Show deserve the highest praise for the admirable arrangements made, both for the convenience of exhibiters and visiters; and the awards of the judges have, we understand, given the most perfect satisfaction. Some sixty of the most eminent rose growers entered the lists, and the display was in every sense complete, excepting that no plants were shown, the entire display consisting of cut flowers. The beautiful hall was, perhaps, never so fragrant before, not even when filled with roses of another growth, bearing about them the choicest preparations of the perfumer. The flowers were displayed on three tables, running the length of the hall; and encircling the platform in front of the organ, was a semi-circular table covered with a collection from Mr. Rivers, of Sawbridgeworth, and as the central table cut this semi-circle in half, so that it was impossible to view the collection in its entirety, it must be set down as one of the mistakes for which the florists are responsible. Mr. Rivers's roses were not entered for competition, so that among the nurserymen, the competition was principally confined to Messrs. Paul, Cranston, Veitch, Turner, Francis, Hollamby and Cant. Mr. Lane was unable to compete, owing to the heat and drought. Among the amateurs, the

best collections came from the Rev. R. Hole, the secretary, Captain Maunsell, C. Pullen, Esq., R. Fellowes, Esq., C. M. Worthington, Esq., Rev. H. Helydar, Mr. Blake, Mr. Moffatt, Rev. C. O. Maunsell, Mr. Walker, Mr. Fryer, Mr. Hewitt, Mr. Stedman, and Mr. Sladden, all of whom took prizes in their several classes. The judges were Mr. Charles Wood, Mr. Henry Curtis, Mr. Parsons, Mr. J. C. Fox, Mr. Perry, and Mr. Busby. Mr. Paul carried the first prize of the day, for a collection of threes, and Mr. John Cranston stood second. The prizes for forty-eight varieties were divided between Mr. Paul and Mr. Turner, but for twenty-four varieties, Mr. Cranston came first, and Mr. Cant second. Mr. Francis took first prize for Teas and Noisettes, and his winning flowers were all grown on the Manetti stock; Messrs. Paul came second in this class.

Mr. Rivers sent a portion of his roses, in glass cases, to preserve their beauty to the close of the day, but the heat, the dust, and the confinement, made much less havoc than might have been expected. The boxes of one kind, in which the flowers were exhibited as if in beds, by Mr. Rivers and Mr. Cranston, were as fresh at the hour of six p.m., as if just gathered, with the morning dew on them. Mr. Rivers had a box of Paul Ricaut, and one of Prince Léon, the latter the most perfect of the Perpetuals. Another of his boxes was filled with Lord Raglan, which proves to be one of the best of the class of which Géant des Batailles is the representative, a dazzling crimson rose of fine substance and splendid form. But, Mr. Cranston's boxes of Géant des Batailles, Jules Margottin, and General Jacqueminot, were, if posssible, still more attractive in their uniform glow of colour and their individual perfections.

Among particular roses, Isabella Grey disappointed all who saw it, and she must be better shown before the public will believe her to be the golden beauty she has been described. She looked starved, and a bloom we brought away with us, in company with some fifty or sixty other sorts, was the first to fall to pieces. Mr. Cranston had in his lot of twenty-four, Lœlia, the largest rose there—colour true rose, and in every point very near perfection. The same grower's Lord Raglan was wonderfully produced, regular as a camellia, dazzling as a Jacqueminot, and of a carriage and perfume equal to the brave man whose name it keeps in sweet remembrance. Auguste Mie, in Mr. Paul's lot, was very grand, and for those who love large roses, one of the best. Helen, one of Mr. Paul's seedlings, is a fine blush of good form and substance. Among the Noisettes of Mr. Francis, was a fine double white, called Madame Deslongchamps, which puts La Biche in the shade, and is apparently of first-rate habit.

For the following lists of sorts, selected from the whole exhibition, as the best in the several classes, we are indebted to the *Chronicle*:—"Blush—Madame Vidot, Madame Rivers, Duchess of Orleans, Auguste Mie, (deep blush), Madame Phelip, Caroline de Sansal, and Mathurin Regnier. Scarlet or Dark Crimson—Lord Raglan, Gen. Jacqueminot, Alexandrine Bachmeteff, Le Lion des Combats, Gen. Castellane, Prince Leon, Gloire de France, Paul Ricaut, and Sir J. Franklin. Rose—Col. Rougemont, (very like Baronne Prevost, and quite as large), General Brea, Madame Hector Jacquin, Jules Margottin, William Griffiths (round and full as a Ranunculus), Madame Laffay, Gloire de Vitry, Prince Imperial, La Ville de St. Denis, Coup de Hébé, La Reine, and Paul Perras. Yellows—Cloth of Gold (some fine blooms of which were exhibited greatly superior to those of Miss Gray), Vicomtesse Decazes, Persian Yellow, and Old Double Yellow. Of Whites none are very good. The best are Dr. Henon, Louise Magnan, and Beauté de Melan. Stripes were not good. Among them we noticed Panachée d'Orleans, Œillet Parfait, and Perle des Panachées. Among Moss Roses we have little to recommend. What were shown as new were not in good condition. Of Autumnal ones Salet, and Madame Ory, seemed the best."

The Stamford Floral and Horticultural Society held its grand summer

exhibition on the 7th of July, in the grounds of O. Edmonds, Esq. Three years ago this society held its meetings in a confined room in the Stamford Hotel, attracting but little notice, and barely maintaining an existence. Now its name is known wherever an interest is taken in floriculture, and its seasonal fêtes are not only occasions of rejoicing to the immediate neighbourhood of Stamford, but a source of attraction to florists from all parts of the country, it being now understood that in Stamford there is something to be seen. This change from death to life is the result of the combined energy of a few spirited men, who, having the interests of horticulture at heart, have succeeded in making Stamford, twice a year, the rendezvous for a multitude moved by the same spirit. To Mr. Johnson, the honorary secretary, Mr. T. Laxton, Mr. Blott, and Mr. Desborough, who have taken the most active part in the management, the most hearty acknowledgments are due, as they are also to Mr. Orlando Edmonds for the use of his beautiful grounds. The plants were shown in a tent upwards of 100 feet long, and there were, in addition, a refreshment booth, a tent for the secretary and his assistants, and, to complete the scene, two platforms adorned with flowers for the bands. The Life Guard's Band was compelled to break their engagement, and, at the last moment, the committee secured the attendance of the Foundry Band, which, with the Hungarian Band, previously engaged, made the affair a joyous out-door fête. The amount distributed in prizes, was nearly £150, including two silver cups for roses, £12 for stove and greenhouse plants, and special prizes for devices in flowers, boxes and glasses of honey, and a prize offered by the Marchioness of Exeter, for the most elegant boquet. There were upwards of 3,000 persons admitted during the day, and the exhibition was in every way a great success. The judges were Mr. W. Ingram, of Belvoir Castle, and Mr. William Davidson, secretary to the Pomological Society. These gentlemen got to work at half-past eleven in the morning, and did not conclude their inspection till near five in the afternoon.

In the award of prizes, Mr. Paul was first for twenty-four roses, Mr. Almey, of Oakham, second, and an extra prize was given to Mr. Francis. For twelve roses, single blooms, the awards were, first, Rev. S. R. Hole; second, Mr. Bates; third, Mr. Fryer; an extra prize was given to Captain Maunsell. For the best stand of six roses, the first prize went to Mr. Thomas Laxton, of Stamford; second, Mr. Trimmell; third, Mr. Cox. For the best device in flowers, the silver medal was withheld, but the second prize was carried off by Mr. Laxton. Messrs. Wood and Ingram took first prize for stove and greenhouse plants, and the Marchioness of Exeter was first in collections of six. Among the objects of special attraction, there were four splendid balsams by Mr. Laxton, and a stem of a standard rose, called Souvenir de la Reine L'Angleterre, from Mr. Ingram, which was much admired. Mr. Laxton obtained first prize for the best basket of vegetables, among them was a fine custard marrow; the same gentleman also took first prize for the best basket of salad, Mr. Islip coming second in each case. The fruit was very fine, the Marquis of Exeter, Mr. Jackson, Mr. Phillips, Mrs. Johnson, and Miss Hurst dividing the chief of the prizes amongst them. Altogether, Stamford may be proud of its Horticultural Society. A full list of the Awards, and an admirable report of the Show, appeared in the *Lincolnshire Chronicle* of the 9th of July, and to that we must refer such of our readers who desire the complete details.

Our space admits only of brief notices of the miscellaneous events of the past month:—

The Gardeners' Royal Benevolent Institution held its annual festival, on Wednesday, June 30th, at the London Tavern. The room was magnificently decorated with flowers and fruits, and beneath the music gallery, was a grand bank of Pelargoniums, contributed by Mr. Turner, of Slough. Upwards of

one hundred gentlemen sat down, including Henry Pownall, Esq., Sir Joseph Paxton, M.P., Mr. Alderman Mechi, Colonel Wood, H. G. Bohn, Esq., Mr. Charles Turner, Mr. James Veitch, Mr. Hugh Low, Messrs. J. T. C. Lee, Mr. R. Godfrey, Mr. R. Glendinning, and others. In the absence of Sir John Russell, Mr. Pownall presided. A liberal list of subscriptions was announced.

Before Lord Stanley quitted office, he ordered an advance of £1000 towards defraying the expense of an account of Australian vegetation, and Mr. Bentham has a commission to prepare it for the press. Among the important books lately issued, we may here call attention to the publication by Mr. Bohn, of a complete account of the Coniferæ, from the pen of Mr. George Gordon, assisted by Mr. Robert Glendinning. The work is entitled "The Pinetum, or a synopsis of all the coniferous plants at present known." It will hereafter claim a fuller notice in these pages.

In the list of forthcoming exhibitions, we call attention to the National Dahlia Show, to be held at St. James's Hall, on the 23rd September, and for which subscriptions will be received by Mr. Turner, of Slough, and Mr. Keynes, of Salisbury.

Stoke Newington, which is as famous for dahlias as it is for chrysanthemums, will have its exhibition of Dahlias, Hollyhocks, Asters, &c., at the "Hare and Hounds" Tavern, on Wednesday, September 1st. The National Carnation and Picotee Society will hold its fête, in the Park at Moira, near Ashby-de-la-Zouch, on Wednesday, August 4th, when 230 guineas and four silver cups will be awarded. On the 5th of August the Pomological Society will meet to award premiums for the best seedling early Peach, and the best seedling early Apricot. The Horticultural Society of Edinburgh has announced the annual exhibition of Hyacinths, to be held in March next.

It is our painful duty to close these memoranda with obituary notices. On the 13th, at Bayswater, died Jane Webb Loudon, widow of the late John Claudius Loudon, in the 58th year of her age. Mrs. Loudon had, from youth, accustomed herself to the use of the pen, and after her marriage with the eminent author of the most important horticultural works of our time, she devoted herself to similar pursuits, and produced a number of works of the highest merit, on botany and gardening.

Another less eminent, but specially entitled to a tribute of esteem in these pages, has been taken from amongst us in his youth, and, in recording the death of E. A. Copland, Esq., of Bellefield, Essex, we desire to express our deep regret for the loss of one who had engaged our best affections as a friend and brother. Though so young, Mr. Copland possessed a mind richly stored with knowledge, and was an enthusiastic lover of horticulture and of kindred refining arts. He was an assiduous and valued contributor to the *Cottage Gardener*, and gave his best of services to the readers of the "Floral World," besides being the author of several works on subjects, associated, more or less, with gardening. His best knowledge was that of the way of Eternal Life, of which he has now become an inheritor, and, perhaps, instead of regretting, we should permit the reflection to turn our mourning into joy. The following memorandum has been furnished to these pages, by the father of our departed friend:—

Your readers have probably observed the signature, "E. A. Copland," to articles from his pen—p. 85 (Garden Plan), 109 (Rockery Construction); and the paper p. 138 (Floral Pyramid), was also contributed by him. He was a young man (22 years of age), of good abilities, and was intended for a civil engineer, and, as such, went out to Brazil, in 1855, but the Almighty disposer of events had otherwise ordered, for, after his return, symptoms of pulmonary comsumption showed themselves, and for *two years and four months*, he was laid aside from the pursuit of his profession. Though sometimes better, no hope was ever entertained of his recovery, and he finally sank on the 22nd of June. During his long illness, he employed himself, whilst able, and afterwards with the help of an amanuensis, in contributing to various periodicals, and he also published some tracts. His

chief object was to be useful to his fellow creatures, and promote the glory of God, as the tone of his papers will amply testify. His great desire was to do that which he thought was too much neglected—intertwine religion with the things of common life. He died in peace, trusting alone in Christ as his Saviour. Reader, be ye also ready!

Chelmsford, 24th June, 1858. E. C.

PROFITABLE GARDENING.

CHAPTER VI.—PROFITABLE PLANS OF CROPPING GARDENS AND ALLOTMENT LANDS.—SEED SAVING.—ROTATION OF CROPS.

Supposing a man to begin gardening in a new district, the first thing he should do, after having ascertained what is the general character of the soil, drainage, and position, is to look about him, and see what sort of stuff is grown in the neighbourhood. It is very easy for a writer to say that cauliflowers like rather a stiff and heavily-manured loam, and beet a very deep and fine mould, in which there is no recent manure; but the fact is, there are many other conditions essential, and we cannot judge fairly of the growth of anything in a soil, until that thing has actually been tried in it. Tell me where, within a telescopic view of the metropolis, can they grow clover as they do in Hertfordshire; or where did you ever see such celery as they raise in the rich loams beside the Thames, a little to the west of London? The same cartload of mould put down on the Kentish chalk, would produce a very different result to what would follow were it shot on the gravel of Hampstead; and if you get into the Fen country, you might find gardening quite a different affair to what it would be on the sides of Malvern Hills. Therefore, before you risk much in seed, and labour, and rent, make a fair guess as to the nature of the crops best adapted to your position. If you grow for market, you must be very much guided by the nature of the demand for certain articles. A man may grow strawberries for Covent Garden, and get three shillings an ounce one day, and sixpence an ounce the next, and these fluctuations must be taken account of by the man who intends to speculate in allotment and garden culture. The motto says, "nothing venture, nothing have," and, by the same rule, "nothing venture, nothing lose"—work with your eyes open; speculate on high-class things if you like, and may your labour be well rewarded, but if you are not thoroughly experienced, these remarks may set you thinking while it is time.

In cropping a piece of ground for family purposes, the ordinary wants of the family will pretty well determine what should be sown, and the relative quantities of each; and if you happen to overdo it in any particular thing—which is likely enough to happen with crops that come in a glut, and go out of condition quickly—you will gain a little knowledge by the occurrence. It is common enough, with the most experienced hands, occasionally to have a superabundance of something which will not keep; indeed, it is rather pleasant to have plenty of any choice thing, because you can send a few baskets as presents to friends and neighbours, while the produce is in its prime, which is far better than leaving it to run to seed, or rot on the ground. Make it a rule to clear off every crop as soon as it ceases to be useful, and if your ground is none too large for you, never grow a single ounce of seed, except of any particular thing of which you cannot make sure of a supply. When you do grow seed, do not leave the worst plants for that purpose, but the very best you have, and give those as much extra culture as they will bear, for poor seed is not worth gathering, and there are few things that cannot be improved by bestowing a little extra labour in growing and seeding it. Such things as peas and beans, if intended for seed, should not be gathered from at all, because the first pods are the best; if they are plucked, and a second supply depended upon, the seed will be inferior. In saving

seed of potatoes, choose the best-shaped, hardest tubers, that have no second growth on them. Let them be thoroughly ripe before taking up; choose those that are about the size of hens' eggs, and let them lay on a piece of dry ground, in the full sun, for a week; then lay them in shallow baskets, and stow them away where they will be safe from frost, damp, and artificial heat, and so that a free circulation of air, and some amount of light, can reach them. By February they will be green and hard, and little purple sprouts will be breaking, and they are just in trim for planting. Of all other things, choose the very best for seed: for early things, choose those that are the earliest in the patch; things that are prized for bulk and weight, select the finest for size, and general perfection, and gather all seeds just before they are dead ripe, and dry them on a piece of cloth, or sacking, so that if any shell out, they may not be lost. But, as a rule, the professional seed grower will beat you nine times out of ten, for he will not only grow them better than you can, and at a tenth of the cost, considering how much more valuable your limited space is for growing the things you most want, but he will harvest and dress them better, and if you deal with none but respectable seedsmen, and avoid the cheap rubbish that is vended in odd corners, you will save a good deal of labour that is, generally speaking, but barely productive.

In growing large breadths, where a market for perishable things is not within reach, or if you have not the convenience for sending small parcels frequently, so as to take advantage of good prices just when you have something choice, place your dependance chiefly on things that keep. Potatoes, carrots, parsnips, turnips, mangel wurzel, grain, seed-beans and peas, grown field fashion, are things that can be housed and sold at leisure; you are not obliged to hurry them off at any price the moment they come off, and there is hardly any district in the United Kingdom, where a fair price cannot be got for them; and to carry them a distance in large bulk, during winter, when there is not much doing out of doors, will not, generally speaking, entail any very great expense.

In suiting crops to your soil, remember that carrots, parsnips, and beet, require a deep, friable, and rich mould; if sandy, all the better. All the cabbage tribe require a rich loam and abundance of manure; beans prefer a clayey soil, and are much grown to prepare such soils for wheat. Newly broken land, generally produces heavy crops of potatoes, and there is no crop that equals potatoes in commencing a course of culture with a view to mellowing a new soil, and fitting it for general culture. As to fruits, apples and pears seldom prosper on shallow soils above gravel; bush fruits, such as currants, gooseberries, and raspberries, do almost anywhere, but gooseberries like rich stuff, and raspberries are partial to moisture. Strawberries require a rich deep loam firm on the surface, and to pay well, they should have abundance of water, unless the soil is naturally moist. Liquid manure is particularly useful in the culture of this profitable fruit.

A proper rotation of crops is very important, for there is nothing more true than the gardener's adage, that the "ground gets tired" of growing the same thing in regular succession. The same thing should never be grown twice on the same spot, without some other crop coming between "to clean the ground," as the men of the blue apron say. The best rule for a rotation course, is never to follow a crop with another belonging to the same family—after peas, it would be a folly to plant peas or beans, though the sort might be different; after cabbage, no brocoli, cauliflower, or kale should be planted, and it is not well to grow potatoes on the same patch two seasons running, though a course of winter culture and fair manuring, may, in most cases, render the ground quite fit for potatoes again. The only exceptions to this rule, are mangel and onions. I know many fields where mangels have been grown every year, for ten or twelve years in succession, and the crops always heavy and profitable, but then they were ridged up in winter, and heavily manured in spring, and no other crop ever put upon them.

The same with onions. If the ground is well tilled, and kept rich in manurial matters, they may be grown year after year with success; but it is not advisable even with these things, to make an exception. In parcelling out your land, you must of course be guided by your wants, and the purpose you have in view, but to secure a good rotation course, it is best not to appropriate more than one fourth to potatoes, and if one fourth more is taken up with permanent crops, you have three fourths on which you may grow potatoes, say on No. 1, this year, No. 2, next year, No. 3, the next. Thus, each plot will produce potatoes but once in three years; and if a crop requiring heavy manure, was taken off the piece that is to have potatoes next year, manuring for the potatoes would not be necessary, for they do better in soil that has been heavily manured and cropped the preceding season. But any scheme will do which does not require the land to be cropped twice in succession with plants belonging to the same natural families — with the pea and cabbage tribes, it is, perhaps, more important than with any, never to fatigue the ground with them. The state of the ground, too, as to previous manuring, is very important, for it is sheer waste to plant a crop that will do on poor soil, in one that has been much enriched, merely for the sake of a change. You cannot grow good celery without abundance of manure, solid and liquid; and when it is liberally grown, the ground, instead of being exhausted, is in the best possible condition for onions. Beet does best on ground that has not been manured for two seasons, because it is not wanted large; the same with onions for pickling, which need the poorest soil you have; carrots and parsnips come well after peas and potatoes, and better than following close on the heels of cabbage or cauliflower, because, for these latter you would use abundance of half rotten manure, and at the next planting, it would not be so far decayed and exhausted, but that the carrots would fork and throw out side roots to reach it. Lastly, it is advisable to succeed every spindle-rooted crop, such as carrots, with one that has fibrous roots, such as peas, and vice versa.

THE TURNIP-FLY.

I am not aware of its having been noticed that there are at least *three* insects of the same habits and destructive nature as the turnip-fly.

1st. The turnip-fly (or beetle), commonly so called, with a buff stripe on each side of the back.

2nd. A beetle like the last, but without the stripes. This attacks seedling rhubarb, and, along with the next to be mentioned, has entirely destroyed one sowing for me.

3rd. An extremely minute, sometimes dull olive, sometimes dull blueish, insect, of the same nature as the two former, but not a quarter the size of the turnip-fly. It jumps like it, and is more frequently to be found on the earth beside the plant, than upon it. This is a terrible pest in the flower garden. Among other things, it took off nearly the whole of two sowings of Nemophila insignis, and entirely eat off some old clove carnations that were moved rather late, besides having, as I have already mentioned, done its part in destroying a sowing of rhubarb.

Along with a florist in the neighbourhood, I at first supposed the loss of the carnations was to be attributed to slugs; but having pruned off a decaying bit one day, on going to take it up a minute after, I found it thickly clustered over with minute dots, of a dirty colour, which jumped off on being approached. This directed my attention to the growing plants, and I found the cut I had recently made covered the same. After observations proved, beyond a doubt, that these minute gentry were the cause of their decay.

Whitland. A. B.

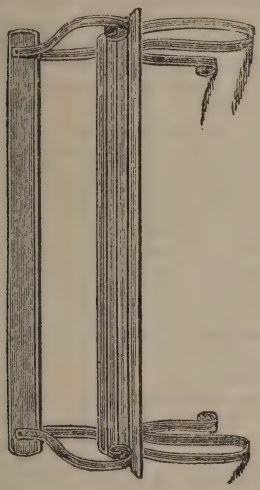
PAWLONIA IMPERIALIS.

In the gardens of R. C. Pomfret, Esq. (ex-High Sheriff for Sussex), a Powlonia imperialis came in to full bloom this year. It produced flower-buds last year, but, unlike Lord Portman's, was unprotected. It was a splendid sight. H. S. T.

USEFUL INVENTIONS.

THE LEICESTER GARDEN SEAT.

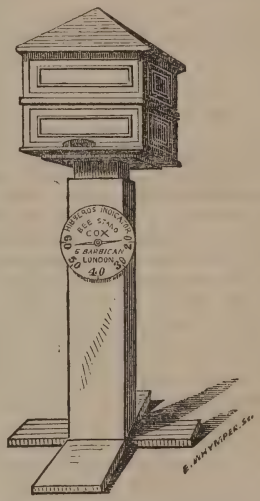
DURING the grand garden show, at Chiswick, the grounds were liberally furnished with marquees, tables, seats, &c., for the accommodation of visitors. Among them were some contributions of iron chairs, and rustic seats, from the Panklibon Furnishing Iron Company, 58, Baker-street, Portman-square, the simplicity, beauty, and cheapness of which arrested our attention. We would recommend our readers to visit the showrooms of the company, before making purchases of such things, assured that a great saving may be effected, and every variety of taste gratified, by a selection from their extensive stock. The Leicester Garden Seat



is one of these; it is so light, as to be easily moved from place to place, and being fitted with bolts and nuts, may be taken to pieces, and put aside for the winter. The ends are of wrought iron, in one piece, and moderately elastic; the seat and back are of wood, perfectly smooth, and the back gives way to pressure, so as to render it one of the most enjoyable of garden seats. It has been described as "the resting place of the million," and while we enjoyed a rest and an ice upon one of them, we determined to introduce it to the readers of the "FLORAL WORLD," as one of the best pieces of garden furniture ever brought out.—[Price, 16s. 6d., 18s. 6d., and 21s.]

HIBBERD'S INDICATOR BEE STAND.

Having received numerous enquiries respecting this invention, we here represent it, surmounted by Tegetmier's double-box bar hive. Mr. Hibberd's Indicator consists of a pillar, on which is placed a hive of bees. Within the pillar is a spiral spring, connected with a hand, working on a dial-plate. The exact weight of the hive is shown on the dial, by the hand, in the manner of a clock. and a reference to the dial, at any time, indicates, the weight of honey, comb, &c. in the hive. Another hand, not attached to the



spring, can be set to show the dead weight of hive, floor-board, &c., which, deducted from the gross weight, indicated by the travelling hand, gives at any time the weight of the honey. This is the first attempt ever made to show the daily progress of a colony in honey collecting, and it has proved thoroughly successful. It is manufactured and sold by Mr. George Cox, of 5, Barbican, London.—[Price £1 4s.]

COX'S POCKET COMPASS AND SUN-DIAL.

A compass is a necessary implement in land surveying and laying out gardens, and is an amusing and instructing companion, during a tour, or ramble in the country. Mr. Cox, of 22, Skinner-street, London, has just brought out a model compass and sun-dial, enclosed in box-wood, for the pocket, which measures, when shut up, 3 inches by $2\frac{1}{4}$. When closed, the needle is rendered immovable, so that it cannot suffer from concussion, and the silk cord which connects the lid with the lower part, on which the hours are engraved, forms the gnomon to give the shadow. Inside the lid is a table of the equation of time, for the mutual correction of clock and sun, in regard to each other.—[Price 7s. 6d.]

RANSOME'S POCKET FILTER.

Mr. Ransome has applied his patent siliceous stone to the manufacture of filters, with decided success. When at Cannon-row lately, inspecting some of the ornamental stone-work for gardens, we saw, and secured for our own use, one of the pocket filters, made for the use of the troops in India. It consists of a small stone cylinder, to which is attached an India-rubber tube, and ivory mouth-piece. By placing it in water, and drawing through the tube, a pure and refreshing draught is obtained, however muddy the supply may be, the water being thoroughly filtered in passing, by the force of suction, through the stone.—[Price 3s. 6d.]

SEEDLING FUCHSIAS—PLANTS FOR COOL GREENHOUSE.

SOME time back, you suggested that the Fuchsia would be a good subject on which the amateur might try his skill at cross-breeding. I have been in the habit of raising seedlings for some years past, but have never been rewarded with a really fine flower, although I have saved seed from the best; but that is not very much to be wondered at, because the whole race has so much improved during the last six or seven years, that the best variety of one season is eclipsed, and out of date in the following.

I now want to know what is the best treatment to cause seedlings to bloom as soon as possible, and the best varieties from which to save seed.

I have about two hundred plants raised this spring from seeds saved from "Prince Albert," "Prince of Wales," "Venus di Medicis," crossed with pollen of "Empress Eugènie," and vice versa. I discard all varieties not first-rate form, good habit, and hardy constitutions. "Mrs. Storey," for instance, I and many others cannot get to hold its blooms at all, and what is the use of a flower, however beautiful, with such a fault, and with so tender a constitution? Again, there is "Queen of Hanover," which is, I think, the most profusely blooming light flower out, but it does not reflex, and has a long tube. I hope the day is near when these long tubed dirty whites, and dull reds, will be driven out of the Floral World, and be replaced by a race of tubeless, reflexed, wide sepalled, cupped, and double corrolla'd ones. I believe we have *F. Fulgens*, and *F. Globosa*, to thank for the mischief, for, although good enough of themselves, yet, like the produce of many animals of the same species, their seedlings are mongrels, and worse than their parents.

Few who saw the Acacias at the Crystal Palace in the spring, would not wish to be possessors of similar; and it struck me that we have rather neglected these tall spiry kinds. I noted down the names of two or three, hoping to be able to get them, but cannot succeed. Is it against your rule to inform me where I can obtain them, at a reasonable price? Among them were *dodonaefolia*, *virgata* and others with long foliage, and pendant shoots; these kinds I prefer to the pinnated bushy sorts, as growing much more gracefully, and giving an agreeable variation to the usual flatness and formality which our plant-houses usually present in winter and spring.

To the subjoined list of greenhouse plants, I wish you would add a few notes to assist me in a selection, by giving me the numbers of those which may be *safely* trusted in a house where the average winter temperature of 38 to 40 degs. is aimed at, but which frequently, from my absence from home till six o'clock p.m., falls to 35 degs.

1. Acacias, all the kinds
2. Abutilon venosum, and striatum
3. Aphelexis
4. Boronias
5. Bossiœa
6. Burchellia Capensis
7. Aotus graciliana
8. Correas
9. Coleonema rubra
10. Dillwynia
11. Eutaxia myrtifolia
12. Eriostemons
13. Hibbertia
14. Indigofera
15. Linum tryginum
16. Magnolia fuscata
17. Mirbelia
18. Pimelea
19. Polygala
20. Witsenia corymbosa
21. Kennedyas
22. Mauraltia
23. Mitraria coccinea
24. Podolobium
25. Pultenia
26. Tetratheca

CLIMBERS.

27. Kennedya nigricans
28. Bignonia Capreolata
29. Mandevillea suaveolens
30. Dolichos lignosus
31. Tacsonia mollissima
32. Tecoma jasminoides

I conclude, by wishing success to your "FLORAL WORLD," which is, for the money, unsurpassed by any of the gardening periodicals in usefulness. M. C.

The remark we made as to cross-breeding Fuchsias, was simply that they were easy subjects for beginners to try their hands at; we did not say a word about the chances of first-rate varieties. The long style and well developed stamens, render it easy to cut away either, and the pollen is easily obtained and applied. That you have yet had no great luck, should not deter you from "trying again." The great cross-breeders, such as Storey, Banks, Breeze, Turner, and others, raise thousands of seedlings and count on a few novelties amongst the number. One great cause of failure with amateurs, is neglecting to make sure that no "busy bee" or wasp carries to the mother flower, the pollen of kinds that may spoil the cross, and in too many cases the right moment is lost, which is before the flower gets naturally impregnated. But there is no royal road in cross-breeding, and many of the best things have come without human intervention, and by what we call chance.

As to the flowering of seedling Fuchsias, there is little difficulty, and one rule should be observed in regard to the blooming of all seedlings where new varieties are looked for. Get them forward as early as possible, and secure healthy plants. Instead of frequently shifting and stopping, keep them in smallish pots, to starve them into early bloom, and never stop a single shoot from the very first. The points of the shoots will thus produce blooms, long before plants that have been grown on and stopped to increase their size. Unbloomed seedlings should never be grown into specimens, until it is ascertained that they are worth it, and two or three blooms are sufficient, generally, to show what the character will be. "Proving," is an after matter, and the fault of nurserymen is, that having got a new thing of some merit, they cut it close and let it out, before it has been sufficiently proved—hence, expensive Dahlias, Pelargoniums, Fuchsias, &c., that ultimately disappoint their purchasers, for a fine individual bloom is not all that we require.

We make it a rule, to avoid, as far as possible, any recommendation of dealers. If the practice did not lead to jobbery, it might often have the appearance of it, and the less we mention names, the better for our independence of every interest, but that of our readers. Were we in need of the plants you name, we believe we should have no difficulty in procuring them, and if we failed on application to one house, we should write to another, and so on to the end of the chapter, if necessary.

We come now to your pretty list of plants, and recommend for your cool house, *Acacia affinis*, *armata*, *angustifolia*, *Cyanophylla*, *dealbata*, *decipiens premorsa*, *decurrens*, *Dillwyniæfolia*, *dolabriformis*, *elongata*, *falcata*, *fulciformis*, *floribunda*, *grandis*, *holosericea*, *Hugelii*, *hybrida*, *juniperina*, *spectabilis*, *taxifolia*, and *verticillata angusta*, and no others. Select according to the space at your command.

From the others select 2, both sorts, *Abutilon striatum* being very nearly hardy; 7, *A. incana*, *ericoides*, and *virgata*; 9, to be kept rather dry during January and February; 11, sure to do well, for it stands the winter, under a wall, in the south of England; 13, *H. grossulariæfolia*, and *volubilis*; 14, *I. procumbens*, *sarmentosa* (both herbaceous), *amœna*, *atro-purpurea*, *frutescens*, and *spinosa*; 15, *L. trigynum*, *arboreum*, and *Tauricum*; 16, and any other species or varieties you have a fancy for; 18, some years ago we grew *Hendersonii*, *intermedia*, *spectabilis*, and a few others, in such a house as yours, but it required a good deal of care to get them through the winter; 19, *P. latifolia*, *myrtifolia grandiflora*, *intermedia*, *simplex*, and almost any other half-dozen that you may have a preference for; 20, may be tried with little fear, though it should, ordinarily, enjoy a winter temperature of 40 to 50 degs.; 21, *K. coccinea*, *monophylla*, and *inophylla*; 23, nearly hardy; 25, *aspera*, and *cuneata*; 28, and you may add *B. jasminiodes*, *crucigera*, and *grandiflora*; 29, must have plenty of root room, and is best planted out to run along a rafter; 30, 31, and 32, and add *T. capensis*, for specimen culture.

POTTING PRACTICES.—The ordinary way of putting at the bottom of the pot a large quantity of crocks, is but a clumsy proceeding, and one which, if it affords an opportunity for roots to spread themselves freely, affords also a harbour for worms, slugs, woodlice, and other vermin. To remedy this, I put at the bottom a piece of perforated zinc, an inch and a quarter, or more, square, according to the size of the pot, so as completely to cover the hole; this may be had for a trifle of any brasier or tin-plate worker; and may, by the help of a strong pair of scissors or small shears, be readily cut to the requisite size. Upon this I place a small potsherd, with its convex side upwards, taking care that by resting partly upon the zinc it renders it immoveable. I then put in a quantity of good moss so as to form a layer of a third of an inch or more thick, when pressed together by the mould, and then proceed to finish as usual the operation of potting the plant.—*Lindley's Theory of Horticulture.*

NOTES ON NEW PLANTS.

CLIANTHUS DAMPIERI.

Messrs. Veitch have exhibited this lovely plant in such a fine style of growth and bloom at the various shows this season, that the demand for it will be undoubtedly great. It is a new species of the Parrot Beak plant of New Zealand, where it is also known as the glory pea. *C. puniceus* has been a favourite in our houses for many years; it was first found by Dr. Solander and Sir Joseph Banks, in 1769, but not introduced to this country till 1832. In 1840 another species, *C. carneus*, was introduced, and now both of these are eclipsed by the dashing gaiety of *C. Dampieri*, here represented life size, which flowered for the first time in this country, in the greenhouse of Messrs. Veitch, of Kings-road, Chelsea, in March, 1858. The habit is sub-shrubby, the stems clothed with pubescence, and the foliage of a peculiar glaucous green; the blossoms are as large as those of *puniceus*, but of a higher tone of colour, the intense crimson of the petals being relieved and enriched by the nearly black disc of the standard of the petals. It will be an easy plant to cultivate, requiring a compost of peat and loam, with an admixture of sand and charcoal, and a cool house during winter. It flowers very young, and comes readily from cuttings. Messrs. Veitch are the sole proprietors of the stock, but Messrs Carter are offering seed. [Price, plants 7s. 6d. each; seed 5s. per packet.]

THUNBERGIA HARRISI.

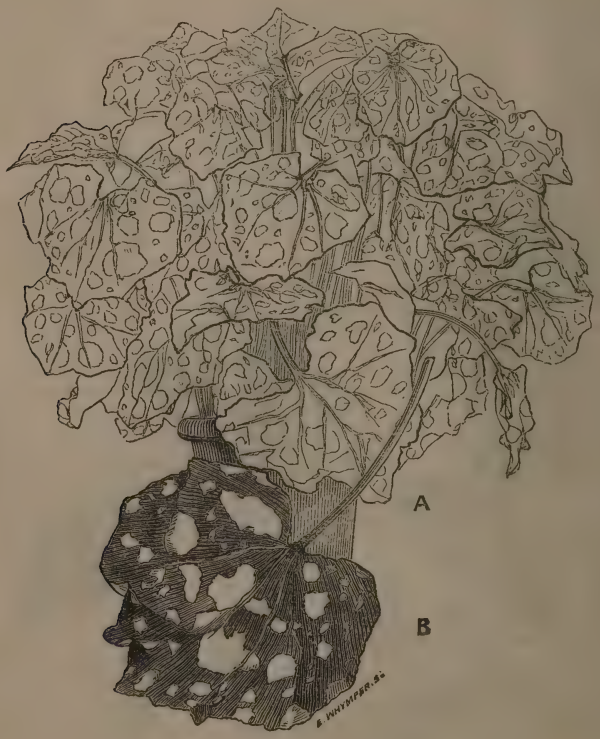
This fine stove climber has been flowered by Messrs. Veitch, and proves to be quite distinct and novel. Seeds were sent from the Malayan Peninsula, by Lord Harris to Sir William Hooker, three years ago, and the Messrs. Veitch have now some splendid specimens in the conservatory at Chelsea. It is a vigorous grower, throwing out its tendrils in all directions, and festooning pillars and rafters with its fine foliage and pendulous racemes most profusely. The flowers are azure blue, tinged with lilac, and with pale yellow throat, large and handsome, some specimens measuring three inches in diameter. The annexed figure will show the bold character of this Thunbergia, the distinctness and beauty of which will entitle it to a place in every stove where creepers constitute a feature.—[Price 7s. 6d. each.]

DIGITALIS PURPUREA GLOXINEAOIDES.

This is a new and beautiful variety of Foxglove, raised by Mr. Simpson, of Wolverhampton, and let out by Mr. Thomas, nurseryman, of Exchange-street, Wolverhampton. It produces a bold spike of pure white and flesh-coloured flowers, marked with deep blotches of imson, and many shades of pink, and bears a close resemblance to a gloxinia. For shrubbery and border decoration, it will be most acceptable, as well as for wilderness scenery and rock-work. It likes a deep loam, and should have generous culture.—[Price 12s. per hundred plants; seed 1s. per packet.]

FARFUGIUM GRANDE.

This valuable addition to our hardy ornamental foliage plants, is an acquisition of Mr. Fortune's, and like *Dielytra spectabilis*, for which also we are indebted to him, will soon become a universal favourite. Indeed, we anticipate that this Farfugium will furnish the means for the introduction of quite a new style of promenade decoration, for which its thorough hardiness peculiarly fits



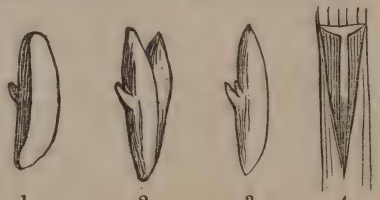
t, and it is, besides, the finest hardy variegated plant we have. Mr. Fortune tells an odd story about it, that when travelling in the north of China, he got perplexed by an oriental button holder, and his patience so exhausted, that he changed his route, and took a side cut towards a village he wished to reach, and in a little back street, saw the plant in the possession of a local florist, from whom he at once secured it, and sent it home. It is closely allied to the family of the Colts-foots, will grow well in any ordinary soil, and in its proportions and colourings may be truly described as a grand plant. The engraving is from a specimen in the nursery of Mr. Glendinning, at Chiswick, of which the following are the measurements—across the leaf, 14 inches; heigth of plant 2 feet; circumference 14 feet. A, represents the complete plant; B, a single leaf, the ground colour of which is a fresh and beautiful green, blotched irregularly with white, amber, cream, and yellow spots. A bed of them, at the Chiswick Show, was altogether unequalled as a foliage effect, and as a border plant, amongst gay flowers, this plant will produce a striking feature.—[Price 10s. 6d. to 21s. each.]

BUDDING THE ROSE.

Those who have stocks, should go over them at once, and note which are in the best trim for budding on. It is useless to work weak stocks; the shoot to be worked, should be plump and vigorous, and the operation should be performed when there is a free flow of sap, as after rains. The first thing necessary is to trim the stocks, and remove, by a clean cut, any small spray that would incommode the hand of the operator, but, anything like a severe pruning is to be avoided. If the thorns were not removed from the stem when the briers were planted, they should be got rid of before the buds are entered. Have your budding knife as keen as a razor, some strips of bass in a can of water at hand, or, better still, some coarse hank worsted. Choose on the brier the best shoot of the year, and from the rose to be propagated, cut a strong shoot of growing wood—that is wood that has not bloomed, and that is without bloom-buds.

From this shoot, choose a bud that is sufficiently plump to be visible, but it must not have begun to push, or it will never take. First cut away the leaf from that bud, but leave the base of the leaf-stalk on the stem. Hold the shoot in the left hand, and enter the knife half an inch above the bud, and cut slantingly towards the centre, past the bud itself, and bring the knife out again half an inch below the bud. The bud is thus removed from the shoot, and with it you have a portion of the wood of the shoot in the form of a crescent, or like the printers' parenthesis mark (the bud occupying the centre. The pretty part of the operation is to get the wood out from the bark so as to leave the latter in the form of a miniature boat with the leaf-stalk and bud attached to the keel. This is called the shield, and this shield is to be inserted under the bark in the stock, where, in time, it will unite with it. If the bud comes away with the wood, the shield is useless, and some kinds of roses are more likely to part with the bud than others. The best mode of detaching the wood from the shield, is to hold it in between the finger and thumb of the left-hand, bark-side downwards, and then enter the point of the budding knife between the wood and the bark at that end of the shield, which is below the bud. By a little twist, and the use of the nail of the left thumb, the wood will come clean away, leaving the bud uninjured in its place in the axil af the leaf stalk. The shield is, generally, held gently between the lips by the operator, while the incision which is to receive it, is made in the stock. If any grit gets inside the bark of the shield, the bud will probably fail, and it must not be wetted inside, and must not be so long exposed to the air, as to lose sap.

To enter it on the stock, hold the knife firmly in the right hand, and make a straight cut across the shoot that is, to receive the bud. The cut to be made as far from the main stem as the length of the shield will require, that is, about three quarters of an inch, or a little more. Then make another slit along the shoot, from the stem to the cross cut, so as to form on the shoot the letter T. Turn the knife and enter the ivory blade under the bark at the top of the t, and pass it down under the bark, so as to loosen it from the wood quite to the stem. Then slip the shield, using the leaf-stalk as a handle, under the bark at the cross-cut; thrust it down till it reaches the base of the shoot under the bark, and whatever projects beyond



1 2 3 4

[1, *bud just cut;* 2, *shield parting from wood;* 3, *shield ready for use;* 4, *the incision on the stock.*]

the top cross cut, must be removed by one clean cut of the knife, and so that the top edge of the shield fits exactly to the bark of the upper incision.

It is where these two edges meet that the junction will first take place, hence the top of the shield, when entered, must be cut away to a nicety. The final act is to tie up with bass or worsted. Begin next the stem, bind it firmly, but not excessively tight, and be careful not to displace the bud, or injure the portion of leaf-stalk on it. The bud itself must not be tied over, but be allowed just to peep through, so as to be free to start; and the leaf-stalk must be left free also. Tie above the bud, on the under side of the shoot, giving a rather tighter twist at the point where the shield fits to the top of the incision. After having performed the operation two or three times, so as to get used to it, you will have to adopt the better plan of making the incision first, and then preparing the shield for it, keeping the scions, meanwhile, in a can of water beside you; but in the first attempts, make sure that you can prepare the shield properly, before you make incisions in the stock. We never use wax, or any other covering than bass.

The best time for budding is early morning. The shady side of the stock is preferable. One bud is enough for a stock, but two are generally entered on opposite shoots, to make more sure of a take. A laurel leaf tied over the bud in the form of an arch, after it is bound up, will protect it from sunshine. If possible, see the operation performed, before you attempt it yourself.

AN OLD GARDENER.

TREATMENT OF INSECTS.

'I WILL do it when I go out slug-hunting to-night," was a sentence which fell from the lips of an amateur gardener. This "slug-hunting is at certain periods a nightly occupation, when by means of an application of the booted foot, several scores of these creatures are scrunched to death.

After this, tobacco-pots are set burning in the forcing houses, by way of exterminating aphides, and satisfied that he has done his duty, our friend retires to bed, little thinking of the number of happy existences he has arrested, or the pain which he has occasioned.

Every insect killed by the hand of man, causes the balance, provided by the Almighty, to be disturbed. If man saw the uses of all God's creatures, he would not so wantonly destroy the worm, the slug, or rose insects, because they *appear* to interfere with his gardening operations. In reality they are valuable help-meets for him; and were they not so, the enjoyment of health is at any time preferable to the production of an artificial garden, or an *unclovered* (consequently scorchable) lawn. The horticulturalist worries himself about worm-casts, and burns the creatures that produce them, with hot lime. But these poor sufferers were opening the soil and roots to air and rain, causing a nourishing description of manure *in the very place where it was wanted.* Insects on our flowering plants, too, must needs be suffocated with sulphur-dust, or tobacco fumes. Now, a lapwing kept in a forcing-house will devour all the insects, without injuring the plants; and a hedgehog will consume wood-lice. The little aphides preyed on by ants, clear away decaying matters, which, if suffered to remain would become a far greater nuisance. Linnæus said, three flesh flies were equal to one lion in devouring carrion. Professor Owen declares this no exaggeration. Were it not for the fifty varieties of insecta found on the common nettle, this plant would rapidly over-run our open spaces. If we destroy ichneumon insects, we must expect an increase of cabbage butterflies. We kill, or frighten cockchafers into the ground; to get at them, the rooks spoil our grass and corn. If we only let nature have her own way, the birds finding plenty to feed on, will not molest our seed. In countries where birds and insects have been exterminated, the inhabitants were obliged, at considerable outlay, to re-import them. Wasps again, keep caterpillars down to proper proportions; and ants, in their turn, prey on the little rose aphides.

Under present circumstances, it is, no doubt, necessary that some insects should be deprived of life; but much more mercy might be exhibited, on the part of the horticulturalist, were he more observant of the manner in which the various species prey on each other; and how, if they were left alone, each variety would keep others in check, reducing them to their proper proportions.

Now, the fact is, some of these small insects have a plant-organization, similar to the water monads; that is, they inhale foul air, and give off oxygen, of which we so much stand in need. Hence, we should not destroy them merely from habit's sake, they being evidently created as purifiers of our atmosphere. Were men and women imbued with perfect charity, they would not crush the toad or spider; they would bear in mind that their Heavenly Father cares even for sparrows. With Cowper they cannot admire their fellow, who,

"Needlessly sets foot upon a worm."

EDWARD A. COPLAND.

MR. JOHN CRANSTON'S CULTURAL DIRECTIONS FOR THE ROSE.

Mr. Cranston, of King's Acre, Hereford, has proved himself a formidable rival to the Messrs. Lane, Paul, Turner, and other noted representatives of the Queen of Flowers. Since he came into the field as an exhibitor, he has accomplished a succession of triumphs, and the horticultural public now recognize him as one of the masters of the Rose. Mr. Rivers, whom we may call the father of the family, has done his best for lovers of the rose in the "Rose Amateurs' Guide;" Mr. Paul has contributed the "Rose Garden"—a splendid votive offering to the Floral Queen—and now Mr. Cranston offers "Cultural Directions," a little book in which ample, and, of course, reliable instruction is given on all the several departments of rose culture, and which we recommend most heartily to every one of our readers.*

With the double view of assisting the rose grower to a few useful hints from the pen of a man who is as original in his writings as he is practical in the subject treated of, and to introduce a worthy book and a worthy name, together with the increase, as far as our influence enables us, of the honourable fame Mr. Cranston has already achieved, we give the following extracts, and refer the reader to the book itself for the lists, and for the calendarial and other information, adding, that while it is one of the best books on the subject, it is also the cheapest.

ROSE CULTURE.

Soil.—The rose is capable of being grown in a variety of garden soils, but that is best which contains the greatest proportion of loam; and a deep stiff loam is what Roses most delight in. The worst of all is the black porous soil, usually seen in town gardens, and which contains a superabundance of humus or decomposed organic matter; here the Rose will rarely thrive without a liberal admixture of stiff loam, or even clay. In such cases the better plan is to plant in beds, which should be prepared as follows. Remove the soil to the depth of eighteen inches or two feet. Then—if the subsoil be dry—first put in a layer, six inches in depth, of good stiff loam, and fill up to the surface with a compost containing about one third of the original soil, and two thirds of loam, with which a small proportion (say one part in five) of well-rotted manure, has been previously mixed. But, if the subsoil is not thoroughly dry, instead of the stiff loam, put in a layer of brick-bats, or any other rough material to act as drainage, and fill up as before. Light, sandy, boggy, and peaty soils may be treated in the same manner.

Low, wet ground is also unfavourable for the growth of Roses, and if planted in such soils, without the aid of artificial drainage, they soon become mossy and die away. Where your soil is of this character, you must proceed thus:—first of all have the whole of the ground well drained, then trench it over to the depth of eighteen inches or two feet, throwing the mould up in ridges to allow the frost and winds to act upon it; when thoroughly dry, level it down, and where the plants are to be placed, take out the soil two feet deep; put about six inches of brick-bats in the bottom, then mix some well-rotted manure with the soil, and fill in as before. With a deep stiff loam and dry subsoil, which is the natural soil of the Rose, little more than trenching and manuring will be required, excepting for the Tea-scented and China tribe, for which the addition of sand and leaf-mould will be necessary.

Manure.—Pig-manure is undoubtedly the best for Roses. Let it lie in a heap for six months, by which time it will have become pretty well rotten; a small quantity of this applied to each plant, and forked in during the winter or early part of the spring, will have a most beneficial effect. Stable manure is the next best, and should be applied when rotten. Guano and super-phosphate of lime are also recommended by some, but these I have not found to answer in my soil, which is of a deep, stiff, loamy nature, naturally good for Roses. I find the application of these manures produces gross succulent wood, and not the firm hard wood which is necessary for the production of fine blooms. Wherever they are used, they should be applied in a liquid state, and, perhaps, when judiciously employed upon light sandy soils, would prove very beneficial.

Liquid manures are best used in the

* Cultural Directions for the Rose, with Select Lists of Sorts, and Calendar of Operations, &c., &c. By John Cranston, King's Acre, Hereford. Derby: Rowbottom. London: Houlston, and Co

spring when the plants are in a growing state, and again to the Perpetuals after the first bloom is over. The drainings from dung heaps I have found the most efficacious, and good liquid manure may be made with either horse, cow, sheep, or pig dung.

Planting.—All kinds worked upon the brier, or other stocks, should be planted in the autumn—say early in November—and the tender varieties upon their own roots, which are usually kept in pots, may be planted at any time from March to May. No plant suffers more from late spring planting than the Rose, and I should recommend that all (with the exception of those to be turned out of pots in May) be planted by the end of February, and in no instance later than the middle of March, otherwise, many failures and much weak growth will be the result. As soon as the plants are received from the nursery, let the roots be examined, and all injured portions and sucker roots removed; also shorten the long fibrous roots; by no means allow the roots to become dry, but have them put into the ground as soon as possible, and there let them remain until required for planting.

Pruning.—This operation will require to be performed during February, March, and April. Commence with the more hardy varieties, such as the French, Moss, Alba, Provence, &c. These for the most part have dormant looking buds, and being less active than others, take a longer time for their development. Next, begin with the Hybrid China, Hybrid Bourbon, and Hybrid Perpetual, but as these are more excitable than the above, only a few of each should be pruned in February, leaving the greater portion to be done in March.

The Tea-scented, China, and tender Noisettes, should not be pruned before April. Before commencing to prune it is necessary to observe the habit of the plant, whether it be a vigorous, moderate, or dwarf growing variety; also to determine with those kinds suitable for exhibiting, whether they are required for that purpose or merely for effect; if for the former, large blooms will be required and less of them, and these can be obtained by close pruning; in the latter instance longer pruning must be adopted, when a greater quantity of blooms will be obtained, but they will be inferior in quality and less in size.

Carefully thin out the head of the plants, by taking away the small crowded branches, likewise all gross unripe shoots, leaving such only as are composed of firm and well ripened wood, and these at regular and equal distances. Prune down according to the strength of the shoot and habit of the variety; in some cases to two or three inches, in others where the habit is vigorous, one foot, or even eighteen inches will not be too long for a shoot to be left, but as this depends upon the habit of the variety and shoot to be pruned, no absolute general rule can be given. In shortening the shoots cut close to an eye, observing, when practicable, to leave well swollen plump buds, which will always produce the finest blooms; likewise secure those having an outward tendency, and pointing in a direction proper for the handsome formation of the plant.

The French, Alba, Provence, and nearly all the Moss Roses, require rather close pruning, and if large blooms are required for exhibition, this particular must be strictly attended to.

The Hybrid Chinas and Hybrid Bourbons, are, with few exceptions, very vigorous growers, and require more care in pruning than most other sorts. An acquaintance with the varieties is necessary to enable the operator to prune successfully—for instance, we have *Fulgens* and *Brennus*, vigorous growing varieties, which frequently produce shoots five or six feet long in a season, either of which if pruned as recommended for the French or some other of like habit, would not produce a flower, whereas, with judicious pruning, every shoot would be made to give out large trusses of blooms. The varieties in these two classes must therefore be carefully studied, as there are some amongst them which require close pruning; and these may be known by their moderate style of growth when compared with the large majority of the same families.

Young plants just received from the nursery will require to be pruned down to two or three eyes, a little more or less according to the habit of the variety; unless this is attended to, large and handsome heads are rarely obtained. The Austrian Briers require a system of pruning peculiar to themselves; if pruned in the spring, as recommended above, they will produce but few, if any blossoms; therefore all plants that are required to bloom must be left *unpruned*, with the exception merely of a little thinning out, and having just the ends of the shoots taken off; this treatment may be continued from year to year with *Harrisonii* and a few other varieties; but the *Persian Yellow*, to be kept in vigorous health, must be pruned down close every year, otherwise it will soon exhaust itself; when this plan is acted upon, of course no blooms will be produced that season; it is well, therefore, to grow duplicates of this kind, pruning the one half one year, and the other the next. Like other Roses that are required to form fine and handsome heads, they must

be shortened down to four or five buds the first season of planting.

Weeping Roses (which are vigorous growing varieties, worked five to seven feet high) merely require the gross unripe shoots and those which are over-crowded to be taken out, and the others left unpruned. These for the first year or two should be trained round a small iron hoop placed underneath the head of the plant; in a short time they will form most beautiful pendulous trees, requiring little or no pruning.

Protecting. — The whole of the Tea-scented, China, and the greater portion of the Noisettes, will require to be protected more or less, otherwise they will not withstand the long and continuous frosts and north-easterly winds, which have of late years been so prevalent throughout the spring months. The following is the plan I have adopted during the last few years for protecting the tender-budded varieties grown as standards or pillars; and nothing can be more easily applied, or more completely resist, the effects of frost. In the first place have a quantity of hay-bands twisted and rolled up into convenient lengths; let a stake be driven into the ground close to the plant, and sufficiently long to pass through the head of the plant to the extent of the shoots; draw the branches up together, and tie the whole moderately close to the stake, so that the hay-bands may be easily turned round the whole of the head, commencing at the lower part or collar of the bud. About this, let the bands be put on quite close, but towards the middle, and on the upper part of the plant, leave a little space between the coils of the ropes to admit air during damp weather. In the northern and colder parts of England, it is a good, and, perhaps, the best practice, to take up, about November, all the Tea-scented and China varieties, and place them against a south wall, and in very severe weather to put a little matting before them. In the spring, say early in March, re-plant them where they grew before, putting in a little fresh loam and rotten dung. The best protection for tender varieties upon their own roots, is afforded by half-decayed leaves placed two or three inches thick upon the surface of the bed: moss will also do, but will require to be pegged down, or stones placed upon it to prevent the wind blowing it away.

A lighter protection for the heads than that recommended for the Standards, will suffice for these; if the roots and crowns of the plants are well preserved, a sufficient quantity of shoots will be produced from them to replace any that are killed down. A few fern branches placed about the head, is usually sufficient.

Insects.—The Rose is attacked by many insects throughout the spring, summer, and autumn, but the most destructive are the "green rose-grub," (the larva of the rose moth) the "black-headed grub," and the "green aphis," each of which appears upon the plants as soon as they show signs of vegetation.

The large green grub is most destructive to the foliage, and the small black-headed grub to the young bloom buds and shoots. The only effectual way of getting rid of these pests, is to look over the plants daily and pick them off; when not feeding, they are to be found enveloped amongst the leaves. To destroy the green-fly, I have found syringing with a weak decoction of tobacco and soft soap, the most economical and effectual remedy. Where a quantity of plants is to be done, take one pound of tobacco and two pounds of soft soap; to these add six quarts of boiling water, and let the whole stand a day or two until the soap is dissolved; then strain the liquor through a piece of coarse canvas, and add nine or ten gallons of water; with this diluted fluid, syringe the plants infested, or, otherwise well moisten the whole of the leaves and shoots. If necessary, repeat this operation twice or three times, and also syringe occasionally with clear spring water. Fumigating with tobacco is a good and affectual way of destroying green-fly, but means must be devised to confine the smoke, otherwise it will be of little use. About the end of July and August, the "antler rose saw-fly" may be found devouring the foliage; this caterpillar may be seen holding fast to the leaves, generally upon the under-side, and being of a green colour, is often unobserved until it has destroyed much of the foliage of the plants. Here too, again, hand picking is the only effectual resource.

Stocks.—A few observations upon the varieties of stocks upon which roses are budded may not be out of place, or unacceptable to my readers. The wild Dog Rose and the Manetti (a vigorous variety of the Hybrid China) are almost the only kinds now generally used; the Celine and Boursault are used for Dwarfs by some, the former is only suited for a few of the tender Noisettes, such as *Cloth of Gold*, which takes and flowers freely upon it; the latter is not adapted for an out-door stock, but is sometimes used for pot-culture, but is not equal to the Manetti. The Manetti has its friends and its enemies;—and some few extol it beyond measure. I have grown it from the second year of its introduction, and can now safely venture an opinion respecting it. For pot-culture every one must acknowledge

it far superior to any other stock in use. For out-door culture, there are many who use it extensively and much approve of it, while others who have tried it, having failed to produce satisfactory plants with it, are, perhaps, become a little prejudiced, and will not even grow it. These latter I suspect have failed from two causes, first, the improper preparation and cultivation of the stock, and secondly, the indiscriminate working upon it of all varieties, without the due regard of their habit of growth. In the former instance, no kind will succeed upon it unless the stock in the first instance is properly prepared and properly worked; and in the latter, a knowledge of the kinds that are adapted for it should be acquired, and those only should be worked. I have at various times budded nearly every variety upon it, and have long since come to the conclusion that it will not suit all kinds. But for all the free and vigorous, and many of the moderate growing Hybrid Perpetuals, Hybrid China, Hybrid Bourbon and Bourbon families, and a few of the Tea-scented sorts, it is admirably suited, and also proves a most valuable and lasting stock, existing proofs of which now abound in my nursery. It is also the best of all stocks for "Pillar Roses," which, when budded upon it, form noble plants in a very short time. But for the dwarf and delicate growing Hybrid Perpetual, Bourbon, or Tea-scented kinds, it is not at all suited, nor, in fact, will they last long even if they once get a fair start; the stock being of a very vigorous and excitable habit, requires a variety somewhat equal in growth to support its vigour, otherwise it will either exhaust itself or kill the variety budded upon it. It should always be worked close to the ground, and planted above the collar of the bud.

THE CULTURE AND EXHIBITION OF THE HOLLYHOCK.

BY MR. W. CHATER, OF THE SAFFRON WALDEN NURSERY.

The Hollyhock requires good old garden soil, well trenched over to the depth of two feet, with plenty of thoroughly decomposed manure, such as old cucumber beds, or night soil mixed with the earth. If the subsoil is wet they will thrive remarkably well in the summer, but in the winter, wet is very injurious to them, when old plants are allowed to remain; to prevent which, I remove the mould round the neck of the plant, and fill up with white sand, about six inches round the stem, level with the surface; it is simply to preserve them from wet and insects; from which, in the winter, they are apt to suffer very much, if not killed. I strongly advise young plants being planted every year, as you would Dahlias, to secure fine flowers. They may be propagated by single eyes in July and August, also by cuttings in the spring, placed on a slight bottom heat. Plants raised in the summer, are best preserved, by repotting them in October into large pots —the larger the better, in light rich sandy earth, and placed in a cold frame or greenhouse, giving plenty of air on all favorable occasions; they will then grow during the winter. In March or April turn them out into the open ground, and they will bloom as fine and as early as if planted in the autumn. Plants even put out in May, will flower the same year. Plant them not less than four feet from row to row, and three feet apart in the row. If grouped in beds, not nearer than three feet each way. They will grow well in the shade of distant trees, but by no means must the roots interfere. In May or June, when the spikes are grown a foot high, thin them out according to the strength of the plant; if well established, and very strong, leave four spikes; if weak, two or three; when they are required for exhibition, only one must be left.

The following observations on exhibiting, perhaps, may not be out of place here, and as I believe the best way of showing the Hollyhock is in spikes, I give my opinion of what I consider the standard of a perfect spike.

In judging, the first point I notice, is the individual flowers on the spike, the perfection of which, consists in the petals being of thick substance, the edges smooth and even. The florets occupying the centre must be full and compact, closely arranged, rising in the middle to a half globular form, with a stiff guard petal extending about half an inch, or in proportion to the size of the centre ball, so that the different parts of the flower present a uniform appearance. Second—the arrangement of the flowers on the spike should be regular, not crowded together into a confused mass; nor loosely hanging with open spaces between each flower, but so disposed that the shape of each may be distinctly seen, and fully blown, the uppermost covering the top: nothing

can add more to its beauty than a few small green leaves between the flowers, which give it an elegant and graceful appearance. The third point is colour —the brightest, strongest, and most distinct, stand first, but it is desirable to obtain all imaginable shades. Stake them before they get too high, and secure them well by tying, and they will grow erect. The most robust grower does not require a stake higher than four feet from the ground. If the weather is dry at the season of the year, they may be watered with a solution of guano, or any other liquid manure, poured carefully round the roots, avoiding to pour it on or too near the stem To grow the flowers fine, cut off the lateral shoots, thin the flower buds, if crowded together, and take off the top of the spike, according to the height desired, paying attention to the usual height and habit of the plant. Observe, by topping it, you may increase the size of the flower, but at the same time, shorten its duration of flowering, and, perhaps, disfigure its appearance.

AUGUST WORK IN THE GARDEN AND GREENHOUSE.

The gardens are now in their gayest trim, and every care should be taken to keep them so, as long as the season lasts. During dry weather, beds of geraniums in full bloom should have an occasional heavy shower from an engine, to wash the fallen blossoms off the foliage, and once a week, at least, all the bedded stock should be looked over, for the purpose of cutting away faded trusses, and to thin out shoots for striking, to keep over winter. When the nights are cold, it is best to water, when required, at daybreak, as, at this time of year, cold and damp together, sometimes cause mildew. Some of our Reidii geraniums were mildewed by the cold weather we had at the beginning of July, but, of course, recovered, when the heat increased. The heavy rains of the past month did a vast deal of good, especially to the grass, which, in many places, was getting sere, for want of moisture. Those who are curious about bedding effects, should at once make their visits to Kew, Chiswick, Sydenham, and other noted places in their own localities, to judge all new things on the ground, when at their best. Geraniums, petunias, verbenas, penstemons, &c., should now be in full glow, if really worthy sorts; and, at home, it is well to make notes, before the season closes, of all successes, and all failures, with a view of determining what stock to raise for next season. Wherever much artificial watering has been resorted to, the ground will, if not already loosened, require a dressing with hoe and rake, so as to open the surface, after which, straggling shoots should be pegged down, to keep the beds well covered. In the kitchen and fruit garden a prospective view of things should be taken quickly, in order that whatever operations are necessary to make all right for the winter, may be attended to in good time.

Kitchen Garden.—Winter greens claim the first attention, and it is necessary to ensure at once a good supply, and a variety. By this time, Scotch kale, Brussell's sprouts, Broccolis, savoys, &c., ought to be strong, and where they have been planted between rows of peas, to stand the winter, should now be looked over, and every other plant taken out, to make fresh rows, if they are at all crowded. Cabbages of most kinds may be sown in the second week of August, Shilling's queen, Sprotborough, West Ham, and red Dutch, ought to have a place in every garden. Sow also prickly spinach on slopes in rich soil, and plenty of hardy green Hammersmith, and black-seeded cos lettuce. The summer-sown endive will now be strong enough to plant out on slopes, or raised beds. Give plenty of water, alternating with liquid manure, to celery, and do not earth it up until it is well grown, the earthing being only to blanch it for use. Give plenty of water to broccoli and cauliflower beds, and top scarlet-runners. In good open situations, vegetable marrows, for a late supply, may still be sown. Use grass mowings to mulch the ground between crops that are likely to suffer from drought. Hoe between the rows of potatoes in dry weather, but do not draw the earth to the stems; the admission of air and sun-heat to the roots will hasten the ripening of the tubes; the foliage, where it remains green, should be injured as little as possible. Those that are casting their haulm may be taken up.

Flower Garden. — Continue to bud roses and fruit trees, choosing damp, dull

weather—they take best just after heavy rain. In budding on the manetti stock, enter the bud just above the collar, close to the ground, the proper mode of planting afterwards, being to sink the base of the bud below the surface, so that the rose will root as well as the stock. Bedding geraniums for next season, should be propagated without delay, and every lot of cuttings carefully tallied, that no mistakes may occur hereafter. Pansies may be sown, as may also most hardy annuals, to stand over winter for early blooming next spring; the latter should be sown thick, on poor, dry, hard ground, to induce a stubby and hardy growth. Some seed should be saved for a second sowing in September, as, in the event of protracted warm weather, such as we had last year, some of the first sown may bloom this season. The sorts to sow now, are calliopsis, Clarkia, collinsia, godetia, larkspur, lupinus, nemophila, nolana, French poppy, and dwarf schizanthus. There is still time to raise a stock of hardy perennials for next season, but not a day should be lost in getting in the seed. The most useful are antirrhinums, delphiniums, dianthus, geum, hollyhocks, Indian pink, lupinus, phlox, potentillas, silenes, sweet Williams, and wall-flowers. Those already up in seed beds should be looked over and transplanted, before they get drawn, through being crowded. Plants left for any length of time to spindle, are likely to perish in winter, and never can make such good specimens as those that have had plenty of room from the first. As storms often come suddenly at this time of year, see that hollyhocks, dahlias, and chrysanthemums are securely staked. Of the latter, the stock may still be increased, especially of the pompone varieties. Either the tops may be struck for pot blooming, or shoots of eight or ten inches in length, may be layered into five-inch pots, and removed when moderately well established. Dwarf plants of the pompone and lilleputian varieties, are very useful for decorative purposes at the end of the season, and are adapted to purposes for which large bushy plants would not be so suitable. The large flowered kinds do not bear to be stopped so late as the pompones. Chrysanthemums of all kinds, should have abundance of water overhead and liquid manure at the roots.

Greenhouse.—Pelargoniums that have been trained out and pruned, should be repotted as soon as they have broken regularly. Put them into the smallest pots into which their roots can be got, so as to allow of a series of shifts till they are once more in their blooming-pots. Young plants and greenhouse shrubs should be well hardened now, before going to their quarters for the winter. Let camellias and azaleas have plenty of sun and little water. Summer struck geraniums, achimenes, and fuchsias, may be got into bloom now, to keep up a display till Christmas. Shift all forward stock required to bloom early. Cinerarias should now be strong, and must have no check; see that they are kept clear of fly, for they are very subject to it. A cold pit is the best place for them. Sow now for decorating the house in early spring, Clarkia pulchella, Nemophila insignis, Erysimum Peroffskianum, Œnothera rosea, Collinsia bicolor, Veronica syriaca, and Chinese primroses.

TO CORRESPONDENTS.

Bedding Plants.—*R. U., Brighton.*—It wont do to propagate bedding plants too early. Geraniums, however, should be struck at once in the open sun. We advise our readers, generally, to thin out the shoots of geraniums wherever they can be spared without marring the beauty of the beds, and to put the shoots into the open ground where there is most sunshine. Young green shoots, and large ripe stems may be used just as they can be got, and a few of the most valued verbenas may be struck from young tops under hand-glasses. Next month, Mr. Hibberd will advise on the propagation of other plants, and on keeping stock over winter.

Heliotropes.— *C. Mc D.*—These come from cuttings of the young tops, in precisely the same way as verbenas, and are best struck under glasess, in a mixture of peat and silver sand. The heliotrope is the most tender of all the bedding plants, and will not bear the slightest frost, consequently, must be wintered under glass, and always kept in a moderately growing state.

Pegging Down.—*H. S. T.*—Most gardeners use the method you recommend.

Botanist.—1, Festuca pratensis; 2, Cynosurus cristatus; 3, Bromus arvensis; 4, Avena flavescens; 5, Arrhenatherum avenaceum; 6, (marked 7) Holcus avenacens; 7, Melica nutans; 8, Festuca diriuscula. We should like to see one of the papers you proffer. If short, and embracing popular subjects, we have no doubt they would prove useful.

Culture of Camellias.—*C. J.*—Camellias flourish in a mixture of one-third peat, and two-thirds turfy loam, with a liberal admixture of sand. To strike cuttings, prepare the pots with plenty of drainage, and fill to the brim with sandy loam, very fine, and pressed firm. The cuttings should be of wood nearly ripe, before the foliage of the season acquires its rich dark green colour. The cuttings are made five inches long, the lower leaves stripped off, and the cuttings inserted close together, and very firm. The pots are then placed in a spent hot-bed, and kept close for

awhile. They take about three months to get rooted, and are then to be potted off. Ripe shoots may also be used, and every joint will make a plant. The double varieties are usually grafted on single stocks, and those who have stocks should begin at once on the strongest, and continue grafting during the winter. When grafted, they are kept under hand-glasses, in a shady part of the greenhouse, till the grafts have taken. Camellias require abundance of air all the winter; never to be coddled, and never chilled. Damp is a great enemy to them. When done flowering, they require extra warmth and moisture, to induce a vigorous growth of new wood, and then to go in the open air all the summer, under a north wall, on a bed of coal-ashes, the foliage to be kept clean and bright, and moderate watering at the root, and towards the end of the summer to be almost dry. Camellias, properly potted in the first instance, will flourish for three successive seasons without further shifting; hence, in the first potting, particular attention should be paid to the drainage.

Gas Stoves.—*Mr. William Worth* reiterates his complaint of the manner in which he has been treated in regard to a heating invention, as a warning to others. It cost him £20 for apparatus and fittings; the affair proved a complete failure, and the apparatus is now lying at the bottom of the garden, and no one will take it off his hands. A gentleman at Ealing has suffered in a similar way, and to a greater extent, as to expense and annoyance. Mr. Worth got redress from the patentees, in the shape of a *present* of a second apparatus, of the value, or rather price, of £4 4s., which, by the tone of Mr. Worth's letter, we imagine to be also useless. Being fond of flowers, and having "begun the ship," our correspondent does not like to leave off "for a little tar," and he asks us to recommend some one to visit his place, and undertake to set all right. Of course, we know of many who would gladly undertake to heat any structure with gas, where gas is attainable, but as we have repeatedly declined to recommend traders; we must adhere to our rule in this instance. If it can be clearly proved that the failure of any apparatus has not been caused by mismanagement, it appears to us that the law will give redress. We never had faith in this particular invention, have heard much against it, and but little in its favour.

House for Roses.—*Rose.*—If Rose gets an iron portable house, the permanent fixing and internal arrangements will have to be determined by the shape and proportions of the structure. We do not, however, recommend iron. For a small span-roofed house, 10 feet by 12, nothing like machinery-cut wooden sash-bars, and large panes, say not less than 18 inches in length. The walls might be two feet high, with lights two feet six upon them, and made to hang, to admit of being thrust out for ventilation. An angle of 45 degs. is the best for the roof, as this suits all seasons, and thus gives a height of seven feet six inches, a stage eighteen inches wide all round, a path two feet wide, and a trellis table, in the centre, of three feet, the middle row of plants to be stood on empty pots. A set of four narrow shelves might be hung on iron rods above the path all round. We cannot recommend a manufacturer. If the *Felicite perpetuelle* does not make some good wood during the autumn, we should advise you to take it up, and plant another in October—there must be something wrong at the root. Was it overdosed with liquid manure?

Kitchen Crops Destroyed.—*A Green Hand* complains of the destruction of his cauliflowers, peas, onions, &c., "by grubs, or something of that kind," and asks if lime from the gas works would prove a cure. The lime will certainly do good, and if carefully used, cannot do harm, but how is a poor Editor to solve the riddle of "grubs, or something of that kind?" Suppose it to be earwigs, you may use gas lime till you kill your plants, and yet the pests will remain, suppose it to be the grub of the crane-fly, there is hardly any dressing that will kill it. However, use the gas lime between the rows of cauliflowers, and dress the onions with a mixture of soot and lime, if the tops are still green; if they are near ripening, they should have no preparation laid on them at all. "Glenny's Properties of Flowers and Fruits," will enable you to "judge for yourself," as to the properties of your flowers. Any bookseller will get it for you to order. You must not be too sensitive about the remarks of "old hands;" you may learn a good deal from them, perhaps.

Nesbris Japonica.—*Ignoramus.*—We have no knowledge of this plant, and submit the following to our readers, in the hope that some one will kindly furnish the information:—"Can you give any hints how best to treat a promising young plant, the *Nesbris Japonica?* It was sown in June, 1855. The fruit was bought of a fruiterer in Jermyn-street, opposite the British Hotel. On the 7th of June last, the stem measured ten inches long, and one of its leaves then measured 14 inches in length, and 5½ inches in width. The stem is now (8th July) nearly 12 inches long; two of its leaves measure full 14 inches each in length, and 6 inches in width. It has 15 full-grown leaves, serrated, of a glossy green, and downy on both sides. It stood, at one time, in a small conservatory, but has now been for some time in the sitting room, as it did not thrive in the greenhouse. Is it hardy enough for the open air? Has it been reared in England to produce fruit?"

Sigma's Aphis Powder.—Since we referred to this preparation, we have received numerous letters from correspondents, testifying to its efficacy, and as soon as we are unfortunate enough to need a prompt agent of destruction for aphides, we shall try it ourselves; hitherto, this season, we have been very free of such pests, except during the last fortnight of June, when the drought compelled us to resort to the use of tobacco. We hope our readers have enjoyed a similar immunity, and as many may now be led to use Sigma's Aphis Powder, we take this opportunity of impressing upon them the necessity of using it fresh and dry, and with such care, that it is not thrown on the foliage in excessive quantities. The *Boite à houppe*, described in the first number of the "Floral World," will probably prove the best implement with which to distribute it.

Culture of Veronicas.—*C. Johnston.*—Hardy Veronicas thrive in any good garden soil; choice expensive kinds should have a mixture of peat and loam, and a thin mulching of very rotten dung at the beginning of March. They are propagated by division of the crown in spring, in the same way as a sweet William; they are also easily increased by taking cuttings of young shoots in the summer, and dibbling them into a sandy border, under bell-glasses; and lastly, by seed, which may be sown from May to September. Greenhouse kinds do best in a cool house, but they bear heat very well, and may be got into bloom early, along with pelargoniums, &c. A temperature of 36 to 46 degs. suits them all the winter, and the soil to be peat, loam, and chopped turf, in equal quantities, with a little sand, and not to be often shifted.

SPECTABILIS. — *A. F. E. G.* sends us seeds of this plant, with the remark that, "before the seed comes to maturity, the flowers drop off, and few can be found remaining on the plant. Can you tell me how to ripen them?" Many similar instances have occurred; but the rule still holds good, that seed is not to be looked for. All attempts at artificial fertilisation have failed, owing to the peculiar construction of the flower. When seeds are obtainable, there is, we think, little fear of their ripening; indeed, a portion of those sent us appears ripe, and we purpose putting them to the test, by sowing them in a gentle heat.

HOLLYHOCKS.—*Scrutator.*—Keep them well staked, allow but one stem to each plant, mulch with cow dung, and give plenty of water in dry weather. Liquid manure, moderately strong, will much improve them, to be discontinued when the blooms open. Cut them down close to the ground as soon as they cease to be ornamental, and if the sorts are valuable, take up the roots and pot them, and keep them in a cold pit all the winter. But in your climate, we should think any hollyhock would stand the winter safely. In spring divide the roots, leaving only one crown to each.

MELON CULTURE.—*A. B., Whitland.*—You are doing right by your melons, cucumbers, &c On ridges they are, of course, late in fruiting, and your success now very much depends on the weather. Last year, melons out of doors ripened beautifully, but then, what an autumn we had! The hints about stopping the vines, &c., given last month, apply to your method of culture, as well as to culture in pits, but as a rule, they should be allowed a rather more free growth out of doors, to increase the amount of foliage. We have no doubt you will eat some good fruit.

GAS HEATING.—*W. Thurley.*—For gas heating to succeed, the flame should be enclosed and supplied with air by means of a pipe from outside the house, and there must be another pipe to carry the burnt air right away. The current to and from the flame should have no means of getting into the house.

THE WINGED PEA.—A correspondent reminds us that this was figured by Curtis, in the 2nd vol. of the "Botanical Magazine." He calls it a native of Sicily, and says that Miller observes that it was formerly cultivated as an esculent, the green pods being dressed, and eaten as peas.

METEOROLOGICAL CALENDAR FOR AUGUST.

31 DAYS.		WEATHER NEAR LONDON, AUGUST, 1857.					31 DAYS.		WEATHER NEAR LONDON, AUGUST, 1857.				
		BAROMETER.		THERMOM.	WIND.	RAIN.			BAROMETER.		THERMOM.	WIND.	RAIN.
		MAX.	MIN.	MX. MN. MN.					MAX.	MIN.	MX. MN. MN.		
S.	1	30.064	29.955	78 59 68.5	SW	.00	Tu	17	30.027	29.955	72 42 57.0	N	.00
M.	2	30.082	30.056	80 44 62.0	SW	.00	W.	18	30.089	30.048	76 54 65.0	E	.00
Tu	3	30.016	29.902	90 51 70.5	S	.00	Th	19	30.121	30.109	74 61 67.5	NE	.00
W.	4	29.904	29.880	88 52 70.0	SW	.00	F.	20	30.123	30.098	75 58 66 5	NE	.00
Th	5	29.871	29.761	77 54 65.5	SW	.88	S.	21	30.001	29.879	75 62 68.5	NE	.00
F.	6	29.698	29.610	78 51 64.5	SW	.30	S.	22	30.060	29.967	79 59 69.0	E	.00
S.	7	29.698	29.640	68 54 61.0	SW	.00	M.	23	29.918	29.630	84 61 72.5	E	.00
S.	8	29.714	29.648	67 52 59.5	SW	.00	Tu.	24	29.878	29.627	84 64 74.0	SE	.00
M.	9	29.948	29.749	70 43 56.5	W	.14	W.	25	30.113	29.927	83 64 73.5	SE	.00
Tu	10	30.117	30.050	80 61 70.5	W	.01	Th	26	30.300	30.019	82 57 69.5	SW	.00
W.	11	30.129	30.090	78 54 66.0	SW	.07	F	27	30.336	30.210	80 66 73.0	SE	.00
Th.	12	30.119	30.031	83 52 67.5	SW	.06	S.	28	30.261	30.202	77 52 64.5	NE	.00
F.	13	29.963	29.695	83 57 70.0	SE	·53	S.	29	30.161	30.045	70 50 60.0	NE	·00
S.	14	29.723	29.647	76 42 59.0	W	.12	M.	30	30.014	29.955	82 45 63.5	E	.00
S.	15	29.807	29.751	73 53 63.0	W	.59	Tu	31	29.944	29.929	80 56 68.0	E	.08
M.	16	29.938	29.743	81 55 68.0	E	.00							

AVERAGES FOR THE ENSUING MONTH.

DURING sixteen years past, the average temperature of the month of August has been:—Max. 72°; min., 53°; mean, 61°; being half a degree of Fahrenheit below July. The average temperature of the dew point is 54, the same as July; the average reading of the Barometer at the sea level, is 29.973, and the weight of water in a cubic foot of air, is 4.7 grains. The average fall of rain during the past sixteen years, has been 2.5 inches, nearly the same amount as in July. Very high and very low temperatures are occasionally registered in the month of August. Thus, during thirty-one years past, the highest temperature occurred on the 10th, 1842, Thermometer, 93°; and on the 1st, 1846, and the 2nd, 1856, the maximum reached 92°; while there were three instances of the thermometer sinking as low as 32°, namely, on the 13th, 1839, the 21st, 1850, and the 29th, 1850.

PHASES OF THE MOON FOR AUGUST, 1858.

☾ Last Quarter, 2nd, 2h. 2m. p.m. ● New Moon, 9th, 4h. 54m. a.m.
☽ First Quarter, 16th, 11th. 42m. a.m. ○ Full Moon, 24th, 2h. 12m. p.m.
Last Quarter, 31st, 8h. 16m. p.m.

MEETINGS AND EXHIBITIONS, AUGUST, 1858.

WEDNESDAY, 4th, Moira Floricultural, Ashby-de-la-Zouch.—THURSDAY, 5th, British Pomological.—WEDNESDAY, 18th, Airedale, Yorkshire.—THURSDAY, 19th, British Pomological.—TUESDAY, 24th, Banbury, Handsworth, (Birmingham.)—WEDNESDAY, 25th, Durham, Leicester, Reading.—THURSDAY, 26th, Swindon.

*** *Secretaries will oblige by forwarding Announcements, Schedules, &c., of forthcoming Exhibitions.*

THE

FLORAL WORLD

AND

GARDEN GUIDE.

SEPTEMBER, 1858.

LANDSCAPE effects rank among the highest productions in the art of gardening, and, in autumn, when the foliage of many trees and shrubs presents us with a diversity of contrasted tints, the foresight of the planter, in arranging them so as to produce a warm and harmonious picture, is evidenced to the best advantage. The summer glow of the most perfect flower garden is not more beautiful, nor more pleasing to the eye, than many park and shrubbery scenes, where the planning and planting have been carried out so as to give full effect to the splendour of the autumnal hues, as displayed in the first flush in the falling leaf. Nor, in all the varied embellishments of a garden, are there any that can be compared with the broadly-massed outlines, and the vast breadths of russet, crimson, orange, purple, and green, presented by well-grown groups of trees and shrubs, if tastefully arranged as to habit and colour. An old wall, covered with Irish ivy, and Virginian creeper, is one of the finest of out-door pictures at this time of year, but if we wander through ground well furnished with elms, maples, beeches, thorns, ash, birch, sumach, and scarlet oak, we have the glories of the bedding system developed on the grandest scale, *colour* being even a more prominent element in the scene, than *form*, though the latter is not to be neglected, in selecting varieties for autumnal effect. Trees that give distinct colours to the landscape, such as the white sycamore, or the purple beech, are even beautiful standing alone, to be judged on their individual merits; but, when such tints are so easily attainable, the wonder is that so few give their attention to them, as materials for grand combinations of variously-coloured foliage, the

beauty of which increases as the flowers depart, and so prolongs the season for enjoying nature out of doors. Trees and shrubs are too often planted without regard to any rule whatever. They are stuck about, one here, one there, and when the result is really pleasing to the critical eye, it is the effect of chance, not of preconceived design; and chance is, of course, much more likely to lead to failures, than to successes. Chevreul, in his instructive work on the laws of colour, to which we made special reference in our leader of June last,* devotes a section to an analysis of the effects of variously tinted foliage in garden decoration, and advises the assortment of trees of a red hue, with those of the most decided green, and the association of bluish, or bluish-brown green, with a yellowish light green. Followed out according to the elementary principles of the contrast and harmony of colour, the planting of woods, parks, and shrubberies, offers to the artist opportunities for the production of pictures of the most agreeable and varied kind, and though we have many examples of the true application of these principles, such examples are by no means frequent, because the principles themselves are not commonly known. Chevreul, indeed, leaves his reader to apply his rules. He is chary of furnishing details, and contents himself rather with setting forth the method, than the manner of planting to this end. In discussing the merits of lines of plants, he gives an example of two lines intended to conceal a wall, and which are as follows:—First line: Almond-laurel, Violet-lilac, Laburnum, Violet-lilac, and Almond-laurel again, in repetition. Second line: Clumps of Prunus mahaleb only. In arranging shrubs on a border, he advises, for future effect, Thuias, Almond-laurels, succeeded by Hornbeam, Lilac, Privet, &c.; and, for a border of Lilacs only, he recommends the violet and the white to be planted alternately. But if Chevreul is minute as to laws, and careless as to examples, those who take an interest in this important subject, may find examples in plenty, without much reference to the laws of arrangement, in a work specially devoted to trees and shrubs, from the pen of Mr. Paul, of Cheshunt.†

Though ostensibly devoted to one special class of plants, of which the Rhododendron may be considered the representative, Mr. Paul enters into the whole question of trees and shrubs, as materials in garden decorations, and, after describing the formation of an American garden, proceeds to embellish it with selections of evergreen and deciduous trees, according to his own matured judgment and experience, and his refined taste in all that pertains to the sources of pleasure in horticultural pursuits. "To limit the choice of materials," he says, "would be to treat American plants unfairly, for as most of them bloom in May and June, large tracts of ground must be tame and monotonous at other periods of the year." Thereupon, Mr. Paul presents his readers with a selection of trees and shrubs, arranged according to the tints of their foliage; and this selection, we presume, will be equally interesting and useful to our readers at this time of year, whether they cultivate Americans or not. Among evergreens with dark foliage, Mr. Paul enumerates the Phillyrea, the Irish

* Ante page 123.

† American Plants: their History and Culture, &c. By William Paul, F.H.S., author of the "Rose Garden," &c. Piper, Stephenson, and Spence.

yew, Taxus adpressa, the Dovaston weeping yew, and some coniferæ, such as pinus, abies, picea, &c. "What can be better," he says, "than the Hedera Regneriana, or giant ivy, with its thick, dark leathery leaves, if there are fences, or rustic ornaments, to climb, or rockwork to scramble over," and we would add, what can be more suitably mixed with this, or the commoner dark-leaved ivies, than the hardy and fast-growing Virginian creeper, which is now beginning to delight the eye with "a fiery sunset on the leaves?" Among flowering trees and shrubs to group with Rhododendrons and Azaleas, Mr. Paul assigns high positions to the scarlet and double-pink thorns, the white and red horse-chestnuts, the laburnum, white broom, Wiegelia rosea, double-blossomed furze, tree-pæony, guelder rose, and viburnum plicatum, and to these we would add hydrangeas, cistus, helianthemums, fuchsias, spireas, syringas, and the elegant Berberis Darwinii. "Next," he says, "we have, in the changing leaf of the Azalea, rich, warm, glowing tints of autumn, which we seek also to extend. What more beautiful than the semi-transparent, flame-like leaves of the scarlet oak (Quercus coccinea)? The champion oak (Q. rubra), is only a little less beautiful than the preceding, the leaves, instead of scarlet, dying of a fine blood-red. Place yourself under that liquid amber on a bright day in autumn, and look through the tree at the sun; the leaves are purple, scarlet, green, and gold. Is it not a picture in itself, and one that warms you to look upon? The scarlet maple (Acer rubrum), is also a beautiful tree in spring, summer, and autumn. The leaves of the stag's-horn sumach (Rhus Typhina), change to a rich brown, and scarlet in October, the tufts of feathery flowers often standing erect throughout the winter months. There are also others here, as the tulip tree, the Norway and sugar maples, the common ash, the common birch, the Venice sumach, the Salisburia, Kolreuteria, and whose masses of golden foliage produce a fine effect late in the year." A classification of shrubs, and trees, according to their several foliage tints, gives us the following list of subjects: Golden-leaved: Variegated Rhododendron ponticum, golden holly, aucuba japonica, golden yew, Thuia aurea, golden ivy, gold-edged periwinkle, and, among deciduous trees, the golden elder, variegated Turkey oak, variegated Spanish chestnut, aucuba-leaved ash, and variegated dogwood.—White, or Silvery: Abies alba glauca, pinus monticolor, snow pine, glaucous juniper, silver juniper, variegated savin, Astragalus tragacantha, Jerusalem sage, and lavender cotton, all evergreen, and the best for winter use. To these may be added the following deciduous trees: Hippophæ rhamnoides, Elæagnus argentea, Acer negundo variegata, variegated syringa, Abele poplar, willow-leaved pear, silver bramble, and, for undergrowth, striped grass, and Senecio cineraria. "This colour," says Mr. Paul, "is even more desirable in summer, on account of the idea of coolness which it imparts." Purple: The real purple beech; "but there are many varieties in the country, with leaves of various shades; the darkest is the best. The black oak is a rare and elegant tree, worthy of general culture. Then there is the purple maple, and the purple elm, and among shrubs of smaller growth, the purple berberis, and purple nut, the golden flowers of the former contrasting finely with its rich purple leaves in spring." Pale Green: "For summer pictures, the deciduous cypress, the Gleditschias, the one-leaved, and cut-leaved walnuts, the cut-leaved oak, the fringe tree, the Venetian sumach, Coriaria myrtifolia, Hypericum

Kalmianum, and cistus capitatus. For evergreens of similar tints, Pinus pyreniaca, abies orientalis, junipers of sorts, Buxus balearica, Ruscus racemosus, Thuia Wareana, and Mahonia fascicularis hybrida. To diversify the scene with white, crimson, and golden bark, we have the graceful silver birch, the blood-red dogwood, very distinct in winter, after its leaves have fallen, and the golden and purple willows, and the golden weeping ash, the latter being one of the loveliest of trees. Then, for rustic work, walls, trellises, &c., we must not forget clematis, honeysuckle, Virginian creeper, roses, jasmines, tecomas, ivies, and the like, the introduction of which produces a charming variety, presenting to the eye brilliant masses of flowers and foliage. Train them to larch poles, rough from the woods, eight or ten feet high, and the picturesque is appropriately introduced; or cover with them any dead or dying trees, or old stumps, should such exist."

In thus quoting from Mr. Paul's book, we have confined ourselves to a subject on which he touches but incidentally, and which it is not his object in the present work to deal with at large. The book is, as it purports to be, a treatise on the culture of American plants, and it is the most complete work on the subject hitherto published, and should be in the hands of every lover of the Rhododendron, Kalmia, and Azalea, to whom it will prove a mine of instruction, as well as a book of most delightful gossip on the pleasures and pursuits of gardening. As we must here quit the subject of foliage effects for the present, we will not dismiss Mr. Paul's book from our notice, without further remarking, that to all the details of selecting, hybridizing, propagating, and blooming, the more attractive of those shrubs bearing the general designation "American," Mr. Paul describes, in full, the best method of forming collections, and of planting for ornamental effect, and supplements these several directions with a copious list of American plants, classified in their several families, so that, to the amateur holticulturist, this is a work of the highest value, the more to be prized for the sake of its author, who is one of the most successful of cultivators, and one of the most ardent admirers of floral beauty, apart, altogether, from nursery usage, and commercial interest.

The complaints against an invention known as Thomson's Gas Stove, which have appeared in this work, were not the only ones for which the Messrs. Thomson, of Dalkeith, must have felt some degree of responsibility. More than once the utility of the invention has been questioned in the *Gardener's Chronicle* and the *Cottage Gardener*, and cases cited, in which, after considerable expenditure and every attempt that ingenuity could suggest to render it effective, purchasers have been compelled to give it up; and, moreover, the sacrifice of money, time, plants, and temper, occasioned through having given it a trial. If the complaints were founded in error, the two journals named, and the "Floral World," would have afforded to Messrs, Thomson, every opportunity for a vindication of the apparatus, and their own fame as its representatives; if a proved failure a candid admission, and such reparation to disappointed purchasers as might be within reason, ought, by this time, to have been offered, but hitherto, Messrs. Thomson have taken no notice of the charges against them, and no one has come forward to speak in praise of the apparatus, as one suitable for greenhouses. Mr. John Stirling, Provost of Peebles, communicates to the *Chronicle*, that he has found it very suitable for warming dwelling houses and places of business, owing to its equable and agreeable heat, and the utter absence of smoke and dust in using it, but he can

give no testimony of its suitability for greenhouses. Is it not strange, that three gardening periodicals, having an aggregate of many thousand readers, cannot produce, either through correspondents or from the manufacturers themselves, a plain defence of an invention which was brought out under the distinguished auspices of Mr. Fleming, of Trentham, and subsequently advertised and sold as the ne plus ultra for possessors of plant houses requiring artificial heat? Messrs. Thomson have been gently dealt with; they have had every opportunity of explaining, or of adducing instances in which the invention may have given satisfaction, but as they appear to have nothing to say, and none of their customers come forward in their defence, we think we may fairly conclude that Thomson's Gas Stove does not accomplish the end for which it was designed—that it is, in fact, one of the mistakes of horticultural invention.

Among the forthcoming exhibitions, and which may be regarded as the concluding batch of the season, the following are the most important. On Wednesday and Thursday, the 1st and 2nd of September, the Aberdeenshire Horticultural Society will hold a Grand Exhibition, in conjunction with the Highland Society's Cattle Show, at Aberdeen Links. The prize list is not on so grand a scale as we may anticipate the show to be, for they do not amount to £50 in the whole, but the pride of Scottish Gardeners' will ensure a display worthy of the city of Aberdeen and its many noble gardens. The 1st of September will be a fête day for London folks who are fond of London flowers. There will be two distinct exhibitions within a stone's throw of each other at Stoke Newington; one at the Manor Rooms, by the old established society which holds its meeting at the Rochester Castle, and the other at the neighbouring Hare and Hounds, where, during the past summer, the proprietor has kept his garden open for the free inspection and entertainment of the public; Dahlias, hollyhocks, and asters, will be the principal subjects at each of these shows. The 8th of the month is the day for the second show of the Stamford Horticultural Society, the most flourishing of the associations of the Midland Counties. In addition to the published schedule, a silver cup will be given for the best 24 Dahlias; a silver medal for the best 12 fancy Dahlias; and second, third, and fourth prizes for flowers in the same classes. Extra prizes will also be awarded for the best asters, French and German, in collections of 24 and 12 each. These are open to all England, and additonal prizes are determined on, for plants in pots. We can but wish well to a society so spiritedly conducted.

At the meeting of the Pomological Society, to be held in the minor room, at St. James's Hall, Piccadilly, on the 9th, the following prizes will be offered, namely; £2 for the best seedling grape with muscat flavour; £2 for the best seedling grape not of a muscat flavour; £2 for the best grape, not a seedling, and not in general commerce; £2 for the best seedling late strawberry; and £2 for the best dish of golden Hamburghs. If not taken this year, these prizes will be offered again next season, and repeated until such are brought forward as the society may consider worthy of them.

The Brighton and Sussex Society, will hold its last exhibition for the season, at the Royal Pavilion, Brighton, on the 15th and 16th; and, to conclude the entertainments of the month in London, the 23rd is to be celebrated at St. James's Hall, by the first National Exhibiton of Dahlias, which is to be conducted in a similar manner to the late exhibition of Roses in the same place. A liberal subscription has been opened, and the reins of management are in the hands of Mr. Turner, of Slough, and Mr. Keynes, of Salisbury.

Lovers of the Chrysanthemum will be glad to learn that the directors of the Crystal Palace have announced a grand exhibition of that flower, to take place on the 6th of November. Exhibitors will there command a larger audience, and visitors an abundance of amusement and elbow-room; but, for examples of culture, Sydenham, with all its facilities for staging and grouping, will never put Stoke Newington in the shade. *There* it is that the chrysanthemum connoisseur must take his yearly lessons, and make and compare notes.

BEDDING PLANTS, AND PRESERVATIVE MEASURES.

BY SHIRLEY HIBBERD.

This has been a somewhat curious season, both as regards the registrations of the thermometer and the barometer, and the growth of certain crops. Remembering June, when the heat was so intense, that more than one death from heat was recorded in the papers, we might consider this to have been a hot summer, but it certainly has not been a hot summer, if we take averages, and make comparisons. January, April, and June, were warmer than last year, but July and August were considerably colder, and towards the end of August, after the heavy rain (in London), on Saturday the 21st, a sharp north-easter set in with brilliant days and nights, almost frosty. On the Monday morning the robins woke me at four, and I took a cup of coffee to my potting bench, to increase the enjoyment of tying up a lot of pompones, but in spite of the coffee, my fingers and toes were so cold, that I was obliged to put the job aside, and go to chopping up some turf and peat, for a bed of American cranberries, a spare lot of which, full of fruit, nearly ripe, I got into a new quarter before breakfast. That nip set me thinking about the weather, past and present; the wretched appearance of marrows and ridge cucumbers, which with me have done worse than for seven years past, impressed me still further, and turning to a thermometer I had laid on the grass, I found it at 33 degs. exactly—only one degree removed from freezing. On the 29th of July, we had a similar low temperature of 33 degs. and the radiating bulb actually showed 30 degs., 2 below freezing. January, April, and June of this year, were higher than in 1857, the latter as much as 2½ degs., but compared with the records of the past thirty years, June, 1858, was 4¼ degs. above the average. But this comparision does not show the case fairly, because as the nights in June were very cold, the days must have been additionally hot to make up the high mean of nearly 65 degs., which was the average in that month. In fact, if we take the maximum only, we shall find the average for June, to be, 71.77, but June 1858 had a maximum of 81.90—more than 10 degs. above the average. This shows that the past June was hotter during the days than at any other time during the present century—the result of an unusual amount of sun heat. On the 16th the thermometer in the shade reached 97 degs., and, in the sun, was equal to that which our troops have had to experience daily on the burning plains of India. Though the mean of that week was 70 degs. above the average, the nights were very cold. In addition to this wide range of the temperature between the extremes, we have had very little rain—much less than our accustomed average. Two large tanks which receive the drainage of my garden, were emptied in June, to keep the roses from suffering, and since then they have not had, at any time, two inches of water in them, and some trenches close by, cut to keep the ground in a soddened state, where the cranberries stood, have been so dry, that I have been enabled to dig out the adjoining ditch for a supply of loam; and compelled to move the cranberries to a spot where I can more easily command water for them.

Strange to say, most crops are fine this season—plenty of wheat, potatoes very fine, and flowers abundant. In the open ground, marrows and cucumbers have been very poor, not in my garden only, but everywhere; but the long droughts and the cold nights explain the circumstance sufficiently to give no occasion for indulgence of fear that any positive disease has taken possession of them.

It is when we consider the temperature of the earth, that we discover the secret of the general excellency of the crop, and especially of the brilliancy of the bedding-plants. The ground has been warmer than usual, and during great part of June and July, the ground heat was almost equal to that of a moderate hot-bed, so that it was the easiest thing in the world to strike cuttings of all kinds, by giving simply shade and moisture in the open borders. The extremes of the temperatures show that bedding-plants are capable of bearing a wide range of temperature; so long as their roots are kept warm, a touch of frost even does them little harm, if they posesss sufficient stamina to throw up fresh trusses, in place of any that get nipped; and I know not what others may have experienced, but I am certain that a bed of Tom Thumbs in my garden, had at least, one-third of their trusses killed by frost a fortnight since, and yet none but those who see them daily as I do, would know that they were any the worse for it.

This brings us to the philosophy of all make-shifts in the management of bedding stuff in the winter. There is always heat to be got from the earth, when the sun affords us none, and tender plants wintered in cold pits, live or die pretty much in accordance with their degree of relationship to the natural heat of the ground. Last

winter, I bedded out in sandy peat in a turf pit, roughly built for the mere temporary purpose, and as much to get the peat out of the way till April, for planting Americans, as to keep the stock, on which I set very little value. There were lots of calceolarias, verbenas, salvias, and petunias; the latter fared the worst and began to drop off in February, but the others did so well, that at bedding-out time they were strong and promising, and now give their gay colours to my beds and borders. Geraniums I did not bed out for the winter, but kept part of the stock in pots, on a layer of clean oyster-shells, and sawdust between the pots to the rim. Had I simply plunged them in sawdust, I should, perhaps, have lost the lot before the first of March, from damp at the roots, but the sawdust was never once wetted, and the geraniums had scarcely a drop of water, for the space of nine weeks. The way the others were kept we shall come to presently.

Last winter, I was in the position of a nomad, who pitches his tent in a hill country, instead of going to a sheltered valley. Taking possession of a place which had not one inch of glass about it, except the house windows, and having drains, walks, beds, borders and lawns to make, old trees to grub up, and plenty of positions for various kinds of planting, and having to plan the whole according to my own fancy, and carry out the alterations according to weather, and other circumstances, out-door work engrossed nearly all my attention, and in making arrangements to keep bedding-stock, I almost drove my man to tears, by declaring it cheaper to lose the whole lot, than sacrifice the time required for earth-work, in any tedious preparation to keep them. But I defy you to sacrifice willingly, even a Tom Thumb in a sixty-pot, if it is one of your own striking, and you set you heart upon gardening in earnest. So instead of abandoning the plants to Boreas and the frost, the bed of peat was made up inside turf walls, six inches thick, some rough boards were laid on the top, and the lights put on. It was the middle of October before we put in any of the stock, and then we devoted one light to cuttings of calceolarias, put them in very short, gave them a good watering, and so left them. Another light was devoted to Defiance verbena, the best of the old scarlets, and taking it all in all, not beaten by any one of the new ones, not even by Mrs. Woodroffe. Another light was appropriated to well-rooted cuttings of salvias, and ageratums, struck the previous August, and at the back we plunged some pots of miscellaneous things, a few André, Géant des Batailles, Brilliant de Vaise, and the pretty little Imperatrice Elizabeth verbenas, some cupheas, lobelias, and petunias. We had some sharpish frosts in January, but the plants had been kept well aired, and had had but little moisture; but their roots had worked well into the peat, and those in pots also pushed through to it, for the ground was warm, and the position a dry one. During frosty weather, we laid on mats, and at first found them sufficient. When a still sharper frost set in, we doubled the thickness of the mats, and then buried pits, frames, and mats completely, by piling on them a heap of clippings of privet, and the prunings of currant bushes; and on one occasion, they were so covered for fourteen days together, without a ray of light, or a breath of air. Mild weather gave an opportunity for them to enjoy both, and everything looked well, and so we got on to the first week in March. In that week I set a Waltonian case to work, and made up a hot-bed, and then looked over the whole stock. The deaths were very few, and were wholly of such things as had been struck very late, and had not had time to get strong before winter. The old plants were first chosen to start for cuttings, and in the Waltonian case and the hot-bed we soon had lots of sprouts, which were put into pans of sand and water, as fast as they grew large enough to take between the finger and thumb, and by the middle of April there was a pretty good stock in thumb-pots of everything, except petunias, nearly all of which went off at the collar, after making an ineffectual start in heat. In the Waltonian case (which I work every season, beside me in my study), I raised above a thousand bedding-plants last spring. It affords room for 32 sixty-sized pots, every sixty-pot will average a dozen cuttings, and you have 720 at one batch. Allow 20 for failures, and there ought not to be more, and make two batches, one to go in as the first comes out, and you have 1,400 in a few weeks, and delightful amusement all the while, and sufficient heat besides to keep the frost out of a room, and so render the windows, and the sides of the case that are opened for air, available for as many pots as you can crowd around it without excluding the light. But, by my method of working a case, the plants go in at one end, and come out at the other, like the machine that used to grind old people into young ones, at Old Ford. Say the right-hand light is kept close, and the left-hand one thrust over the centre to admit air at the extreme left. Those under the right-hand light have most heat, and a close moisture, and as they make a start, the most forward are lifted out to the other side, and fresh pots take

their place. Then, those first pots now in a cooler temperature, and with a little air under the left-hand light, soon get sufficiently forward to come out altogether, and as soon as the first half-dozen are strong enough to leave the warm sand that gives them bottom heat, they are lifted out and jammed in between the glass and the side of the case, so that the warm air that is always escaping there, passes over them, and prevents too great a check, and they get the full light to prevent spindling. Thus, instead of going in and coming out in batches, after the first filling of the case, the cuttings progress according to their strength and condition from that half of the case which is hottest and closest, to that which is cooler and partially ventilated, till they come out altogether, and still, for a while enjoy a warm current, which, coming from below them, strikes first on the bottoms of the pots. Pans of sand and water are served in precisely the same way. The pans are filled within half an inch of the rim, and then filled to the rim with clear water; the cuttings are stuck all over the surface, as if they were aquatics, and the sand is just firm enough to enable them to hold up in the wet. By the time they have travelled from the hot to the cool side of the case the surplus water has evaporated, the cuttings have rooted into the sand, and they are at once potted into thumbs, with sand at top to promote further rooting, and prevent damping off.

It is at this juncture that a hot-bed does good service, if made up a few weeks after the first lighting of the lamp of the Waltonian case. By the time the first of the cuttings have made root, the dung is sweetened, and the heat moderate and constant. Instead of coal-ashes—with which I never cover any material that is afterwards to be dug into the ground, on account of their injurious properties—I cover the dung with either moss or spent tan, and before the pots are plunged, I water the surface with boiling water, into which has been thrown a lump of salt. This effectually "settles" the little slugs and woodlice that harbour all the winter in such loose materials, and the moisture promotes the equable diffusion of the bottom heat. In this way we get towards cold frames again, May-day brings its customary blasts from the north-east, but sun-heat is abundant, and we take care to shut it in, for, in spring, shutting up sun-heat is just as good as it is hurtful in autumn.

But what about the geraniums? Last summer, being "on the move," and not knowing how I might fare in the succeeding winter, I got rid of every pelargonium as soon as the blooming was fairly over. I cut down, and struck lots of Guardsman, Admirable, Gauntlet, Arethusa, Alba multiflora, and French spotted sorts, and got rid of old plants and young ones, when they were in their highest health and vigour of new growth, keeping every one of the horseshoe breed, and a few uniques. I never before tried to keep scarlet geraniums cottager's fashion—in fact, I never thoroughly believed the stories I had heard about hanging them up by the heels in cellars, burying them in peat, and wintering them by hundreds in pots in attics, and so forth; and though everybody knows that scarlet geraniums will bear drought, darkness, and two or three degrees of frost, one can't help wondering what sort of appearance plants present in May, that have been preserved by makeshift. Well, in my difficulty last winter, I kept a large number of old and young plants of all the leading sorts of Scarlets, Commanders, Queens, Reidiis, Tom Thumbs, Tom Thumb's Bride, Cerise, Kingsbury Pet, Oriflame, Miles's Seedling, Baron Hugel, Little David, Punch, and Flower of the Day, some in a top room, on a temporary stage, put up before the window, and against the wall opposite the window, on the true cottager's plan, of hanging them up like bunches of herbs. The Tom Thumbs were taken up on the 28th of September, full of bloom, and loosely packed in wicker baskets, with the mould about their roots, and with lots of flowers on them. The others were either taken up and potted, to go on blooming, or were already in pots, and fit for storing as they were. A number of Tom Thumbs, that had bloomed themselves almost to death all the summer in forty-eights, were left untouched, without cutting, and without shifting, and all the pot plants were kept out of doors till very near Christmas, and the wonderfully mild season we had till then kept them blooming as well as in September. The lot that had been stowed in baskets were, by pressure of circumstances, kept untouched for a week; they were then turned out, every leaf stripped off, but not a shoot cut. They were then tied in bundles, by passing a cord round the stems, close to the roots, and the mould allowed to fall from the roots, but none of it forcibly shaken off. They were at once hung up on nails, in the light, the window open in fine weather, and they remained untouched till February, when each bundle was thrust, roots downwards, into a large flower-pot, and just sprinkled with water. They were then safe from frost, and though the roots were dry as chips when taken from the nails, the branches were breaking all over beautifully. To have potted them, and plunged them in heat, would, I believe, have killed every one, so they were, after a fortnight, during which

the roots were kept slightly damped, filled up to the rims of the pots with sand, and when the Waltonian case was at work, a few were taken, as room could be spared for them. The plants were potted into thumbs, though with heads as big as cauliflowers, and stood round the sides of the case, to get a little of the warmth, the air temperature being about 60 degs., from the stove in the study. When they had made a little progress, and showed signs of having got to work at the root, they were put into the cool end of the case; then took places at the warm end with cuttings that required air, and were then cut over-close, and every joint put round the insides of sixty-pots, in very sandy loam, and not more than five per cent. of them failed in striking. From this they went to pits and frames, had shifts as they needed, but were never indulged with much root-room, and, from the first of June, to this moment, they have been blooming in beds and borders, as well as any greenhouse stock, though so hard pushed, and having so little attention.

Last year, everybody was astonished at the protracted growth and bloom of tender plants of all kinds. The geraniums put the chrysanthemums a little out of joint in November, and we were all interested in the records of the season, which told of raspberries and strawberries gathered on Christmas-day, spring flowers blooming prematurely, and hard-wooded plants growing when they ought to have been at rest. In the last week of October, I had, on a rustic bench, a number of very large plants of Queen, Commander, Reidii, &c., in eight and ten-inch pots—old friends that have acquired a patriarchal dignity in the family, and that, I trust, will not soon disappear from our stock of old favourites. In that week we had some smart gales of wind, and, one morning, I found geraniums, fuchsias, and all sorts of things scattered about, and snapped terribly. Being in a hurry, and intending soon to cut down the plants for striking, I thrust a number of large branches of the Queens into the adjoining border, to keep them moist, till I should have time to pot them. There they remained, till the second week in December, when, in looking about, a truss of flowers just opening on one of them caught my eye, and I soon discovered, that all but two, out of two dozen, had struck, and were growing vigorously. They were at once potted, went in doors with the rest, and did well till February, when six of them died off by damp at the collar, and the remainder are now good plants, and full of trusses, in the garden.

The old plants were, that same week, cut down, and staged in the top room for the winter. The cuttings were sorted over, and all the soft green shoots thrown away as useless, but the ripe branches of six, eight, and ten inches in length, were potted firmly round the sides of five-inch pots, as close as they could be packed, and in this way, about six dozen of them stood till March, when they were gently started, then potted separately, then young cuttings taken from them for blooming late in the summer, and those last cuttings are now flourishing plants, with fine heads, and lots of bloom.

Among the old geraniums, which had not a degree of fire heat, and actually had to endure two or three degrees of frost in the full light, though of course kept quite dry in the pots, those that suffered least of all, were Kingsbury Pet, Reidii, and that miffy thing, Tom Thumb's Bride. The last will strike at any season, will bear to be soaked with water in cold weather, and though never a great beauty, and with little luxuriance in its habit, bears harsh treatment as well as any. Kingsbury Pet is also very hearty, and as it is one of the most beautiful of the pink horseshoes; people who are without greenhouses, should not fear to grow it, and strike as many cuttings as they can take without spoiling the beauty of their plants. Reidii did so well, that some pots full of thick stumpy cuttings were actually in bloom in April, without having been shifted, and when they were turned out early in May, the sandy stuff they were struck in, was one mass of roots. Plants kept in this way, however, are very "leggy," and as ugly as standard roses—a stick and a mop—and the way to set them right, is to plant them on their sides, with the stems on the ground, to be held close down by a strip of bass passed round, and then thrust firmly into the soil. They then throw up shoots from the roots, and from every joint along the stem, and as their hardiness enables you to put them out three weeks sooner than you could dare to turn out plants from a greenhouse, they have more time to start, and, before July, are pictures of health and beauty. The sorts that fared the worst were, the Queens, Commanders, and Mrs. Maylin. Most of these died down to the ripe forks of the main stems, and when they had well broken, were cut close over to the new shoots. Flower of the Day kept growing till March, and then went off at the collar, and when turned out of the pots, were found to have completely rotted at the roots. Uniques did very queerly, the young plants perished entirely, and the old ones had to be cut

close over, and were not in bloom till nearly the end of July, so that for pots and borders we were obliged to have in picked plants with the nursery stock.

You have, perhaps, already anticipated one of the consequences of this preserving and propagating—what was to become of the large stock of plants from April to the end of May with so little pit and frame room? In April, too, I lost the top room—notice to quit was speedily followed by ejection, and the pots strewed about the house on shelves and window-sills, were voted a bore—how a touch of spring sunshine wakens up the female sex to a perception of the dirt, and trampling, and splashings of water occasioned by in-door gardening! In front of the house, in a warm corner facing the south, and quite sheltered from wind, we made a hybernaculum, that was as good as a three-light frame. Some stakes were driven in rows in front, and some hooks put in the wall; from the wall to the stakes, a breadth of Hawthorn's hexagon net of very close mesh, was stretched, and under that fuchsias that had started, geraniums making vigorous growth, and the most hardened of the young spring-struck cuttings, were kept till frosts were over. The net was only used in cold weather, the plants had the full sunshine and as much water as they wanted, and at night it was only one minute's work to hook the net over them, and if the night was frosty the net was doubled. From the plants so kept, our ribbons, beds, and mixed borders, have been abundantly stocked, and when the planting was completed, the refuse was used for rustic baskets, which could be kept out of sight till they became respectable, so that we did not flourish in rustic work till the middle of July, when we brought them forward on the lawn, and were thenceforth as gay as other people.

By this time, everybody who troubles to make cuttings at all, is pretty well stocked with geraniums. I have a large bank of young plants, struck in June, July, and August, now in sixty-sized pots, all in full bloom. The crimson-flowered ivy leaf makes a fine plant for rustic baskets, and flowers at once long before it has filled its pots with roots in summer-time; so does Reidii, Little David, Tom Thumb, Kingsbury Pet, and the Bride, but Commanders, Cerise, and Queens seldom bloom till they have thrown up a number of green shoots, and therefore, are not to be depended on for blooming so quickly. But these large growing sorts, the Queen, and Oriflame, and Mrs. Maylin, especially if potted into thumbs in June and July, plunged in coal-ashes in the full sun and kept moderately moist, may have a shift into sixties three weeks after, and into forty-eights in August or September. If any bloom-buds appear, they are at once nipped out, and the plants, kept growing in full sunshine, make beautiful specimens for winter blooming in the greenhouse, and so I purpose to have plenty of scarlet, to mix with the citysuses, camellias, primulas, and cinerarias under glass this winter and next spring.

Now, the above narrative of events may not be sufficiently precise to meet the case as to suggestions for management of many who are now anxious about increasing and keeping bedding-stock for next year; let me, therefore, offer a few hints derived from the experience of the past fifteen years, as to propagation and preservation in general. The scarlet geraniums are the easiest of all things to manage—so easy, that when I see how people run mad about Tom Thumbs, and plant them everywhere, in place and out of place, I often wish they were as difficult to keep as heliotropes, then they would be used in moderation, and we should not be in danger of losing the sense of the appreciation of softer and quieter colours, which we are now, from the immoderate use of scarlet in gardens everywhere. The whole race of the scarlets are best struck in August and September. They require no shading, no artificial heat, and may be put in by the hundred from either soft or hard wood, young sprouts, or ripe branches. Thin out the beds, as cuttings can be got without spoiling the beauty of the plants; cut every shoot close under the last joint, remove the two lowest leaves, or remove only the bottom leaf, according to the length of the cutting, and either strike them in pots or in the open ground, but in either case, full in the sun. The smallest and greenest are best dealt with in the old style—that is, fill small pots with one-third drainage, and the remainder equal parts of loam and sand, and put the cuttings in all round to touch the inside of the pot; press the soil firm, so as to sqeeze them hard against the pot, plunge the pots in coal-ashes, where the sun shines all day long, water every evening, and every one will make a good plant to shift into thumb pots three weeks afterwards. The stouter shoots dibble into a border anywhere in a sunny place, and they will only want one watering when first put in, and need have no further attention till taken up and potted,

which should be as soon as they begin to shake off their lower leaves and make new growth at top. The oak-leaved, variegated-leaved, and such other choice kinds are the best from spring cuttings, so that, unless struck in July, and got strong before winter, it is best to wait till the old plants break well in spring, and then strike cuttings in small pots in sand. The same with petunias and most of the verbenas: keep a few old plants to cut from in February, then start them to get shoots, and so save yourself a vast deal of trouble to keep young stock, about which there is always a risk, unless you have a house and heating apparatus to maintain a temperature of 45 degs., and even then room is often of more value than a lot of young plants, that may be had in bloom almost as early if struck in February and March. But people will strike verbenas, and the readiness with which they root now is a great temptation. Where the pegs have held the plants down, the joints will be found to be well rooted, and these rooted pieces make good plants, if cut into moderate compass and potted in rather poor soil. But a still better way is to plunge a lot of thumb pots under the second or third joint from the point of each of the main branches, and peg the joint down, or fix it with a stone so that it will root into the pot at once, and give you a plant which, when cut away from the parent, will not have a scrap of old stem about it. Robinson's Defiance, so much prized as the best of the scarlets, keeps in cold frames as well as calceolarias and cinerarias, and these latter are the hardiest of all the soft-wooded greenhouse plants, and will keep without fire-heat in any part of the three kingdoms. To secure a stock of Lobelias, take up a sufficient number of plants the first week in September, and pot them singly in forty-eights to cut from in spring, when the young shoots strike readily in sand and water. Two or three plants will furnish half-a-thousand cuttings if well managed, and so, from September to February, lobelias need not demand much room. Ageratums and heliotropes treat in the same way, but remember the fragrant cherry pie is the most susceptible of frost of all the bedders, and will not stand even one degree for one night, nor will it bear to be dried up in the way we are accustomed to serve geraniums. Calceolarias should never be struck early in the season. Begin at the end of September to take young waxen shoots from the bottoms of the stools, put them in close all over the surface, in five-inch pots, well drained, and filled to near the rim with leaf-mould and sand, and with a tuft of moss between the soil and the drainage, to ensure a little moisture to the roots at such times when severe weather would render it dangerous to give them water over-head. Among my make-shifts last winter, I potted a quantity of calceolaria cuttings in this way, and never put them into frames or shelter of any kind. They stood all together in a warm corner, were kept moist, were several times frozen hard, and only carried in-doors for a few days and nights in the hardest weather. They are now better plants than those supplied in the spring by a very safe trade-grower, on whom I depend for soft-wooded stock, but of course they had good frame culture from the moment it was safe to turn them out of their cutting-pots. They consist of Orange Boven, Amplexicaulis, Rugosa, Gem, and Aurea floribunda, the last a capital bedder, growing as close as Little David geranium, and forming dense polls rather than trusses, of very bright orange blooms. Fuchsias everybody can keep. If safe from frost, damp and darkness suit them as well as daylight, till they begin to break, and the hardier sorts, such as Riccartoni, Globosa, Gracilis, &c., may be cut over close to the ground in December and covered with a few dead leaves, and the cuttings put into pots, and stowed away in frames, or trimmed to six-inch lengths of ripe wood, and put in the open ground just as you would propagate currant and gooseberry trees, only that you must thrust them down, so as to leave only the top joint above the surface; that joint will perish, but the wood will throw up strong shoots in May, and by this simple method any quantity of plants may be had along the back of a border or the front of a shrubbery, with none of the trouble or expense of turning out plants in spring. Fuchsia Riccartoni and Snowberry make the best of light flower-sticks if the ripe stems are trimmed up and dried in the sun, at the end of the season.

To Amateur Fern Growers.—A Silver Cup, value £10 10s., has been offered by T. H. Stainton, Esq., for the best collection of twenty British Ferns, of not less than fifteen distinct species, to be shown at the Crystal Palace Exhibition of the 8th and 9th of September next. Not more than two plants of one kind will be admitted, and preference will be given to the collection having the greatest number of species, provided the plants are in other respects equal. The prize is offered to amateurs only.

NOTES ON NEW PLANTS.

GENTIANA FORTUNI.

This is one of Mr. Fortune's Chinese acquisitions, and will doubtless prove a most valuable border and shrubbery plant. It is a tree gentian, forming a close conical bush, two feet high, and produces hundreds of charming flowers, each nearly as large as the well-known *G. acaulis*, and of a bright cobalt blue, thickly dotted with white spots in the inside. As a strong growing hardy plant it is the more valuable, because of its blue colour, so rare in the queendom of Flora. Sir William Hooker says, "Of the 153 species described in De Candolle's Prodromus, beautiful as they are, the present Gentiana Fortuni excels in beauty all that have yet been described," and we may therefore, fully anticipate for it as great a popularity as most of Mr. Fortune's other introductions have acquired. The stock is wholly in the hands of Mr. Charles Noble, of the Nursery, Bagshot, who is now sending out plants for the first time. [Price 10s. 6d., large plants 15s.]

RHODODENDRON VEITCHIANUM.

This splendid greenhouse Rhododendron, is now being sent out by the Messrs Veitch, who possess the stock. It was exhibited in 1857, and took a first prize at the Grand Garden Show, at Chiswick. It was also exhibited, and similarly distinguished at the Royal Botanic Show, and at the Crystal Palace on the 30th of May. It is from Moulmien, and was, we believe, introduced from thence by Dr. Hooker. The flowers are pure white, and shaped like those of an azalea, the margin of the corolla singularly waved and crisped, the foliage a rich dark green, and the habit dwarf and bushy. Some of the flowers of the specimen exhibited on the 5th of May, 1857, measured five inches across, and Dr. Lindley compared them to *Azalea crispiflora*, on account of their curious edges. As a greenhouse and conservatory species, *Rhododendron Veitchianum* will assuredly take and keep a very high place. [Price 42s. and 63s. each.]

RHODODENDRON GRIFFITHIANUM, *var.* AUCKLANDI.

This is also a white flowered greenhouse Rhododendron, which flowered for the first time, in the nursery of Mr. Gaines, at Wandsworth, in May, this year. It was introduced from Sikkim, Himalaya, in 1849, by Dr. Hooker, but was met with originally, in Bhotan, by Mr. Griffith, from whom it was originally named. But the Bhotan plants are far inferior to this Sikkim form of the variety, which produces fine terminal corymbs of from four to six flowers of a snow white, very large, measuring sometimes seven inches across. It is a close growing shrub, rising eight feet high, and branching from the base, and is one of the most beautiful additions lately made to this charming family of plants. It will not, we believe, be let out this season.

SAXIFRAGA PURPURASCENS.

This Himalayan species of Saxifraga, was raised at Kew, from seed obtained by Dr. Hooker, who found it growing in damp mossy soil, at an elevation of from 10,000 to 14,000 feet, above the level of the sea. Though somewhat resembling *S. ligulata*, and *S. Crassifolia*, it is still very distinct, and far more beautiful. It has bright glossy leaves, elegantly margined with red, and the flower scape is a bright reddish purple. It is not yet, we believe, in the hands of the trade.

NEW FERNS.

We have just added to our collection, a lovely sport of *Nephrodium molle*, now being sent out by Mr. Sim, of Foot's Cray, and we have also received from Mr. Cooley, of Mile Ash Nurseries, Derby, fronds of a new variety of the Lady Fern. Both of these are in process of engraving for our next number, and, for the present, we content ourselves by calling the attention of fern growers to them, as charming additions to our present stock of fern varieties. For greenhouse culture and exhibition, next season, they are, in their way, unequalled.

CULTURAL REMARKS ON THE HYACINTH.

BY MR. CUTBUSH, OF THE HIGHGATE NURSERY.

Before entering into detail of practice, we would wish to define a good Hyacinth. It should be of a compact pyramidal form, with a firm, tall, and upright stem supporting numerous large bells, each attached to the stem by a strong footstalk in a horizontal position. The bells should be perfectly circular in outline, and be composed of thick wax-like petals—among the double varieties, with the centre well-raised, rendering the form convex, and with the single kinds the tube should be firm and rounded, and

GENTIANA FORTUNI.

well open at the base. The bells should occupy half the stem, the uppermost bell being perfectly erect, so as to form, when fully open, a perfect pyramid. The flowers, whether of one colour, mottled, or striped should be distinct.

In the first place, much depends upon the quality of the bulb, which should be *perfectly ripe*, and *the sooner obtained after arrival the better*, for it is highly objectionable to expose them much to the air excepting so much as may be needed to disperse any moisture that they may have attained during their transmission. Always select the largest and best shaped bulbs, rejecting, *as a rule*, those that are loose in their texture and small; but we find, generally, that if the base of the bulb is sound and ripe, the other portion can be depended upon. In fact, this is the *only* guide amongst such sorts as *Porcelain Sceptre*, *Prince Albert*, *Grootvoorst*, and numerous others of the best sorts which have wretched roots; indeed, sometimes we have seen them cast aside as useless. It is, therefore, best to leave the selection to those acquainted with them, until, by experience, the amateur can trust his own judgment.

The compost is another important point. This should consist of an equal portion of turfy loam and well decayed *cow* dung, previously prepared by exposure to air, but not rain, and should be well incorporated; to this add about one-third silver sand, for they delight in a gritty open soil. Use 6 inch or 32-sized pots, as there is not sufficient room in smaller sizes for their strong roots; fill the pots about one-third with draining materials —either broken pots or oyster shells, the latter is best—and the remaining two-thirds with the above compost; clear the bulb of *all* offsets and loose parts, and press lightly into the soil, leaving one-third above the surface; then water sufficient to settle the soil, and plunge them a foot at least under coal ashes, or old tan out of doors, or a cold frame may be placed over them, still plunging them, for this is done to cause them to make root before the crown starts; *this is a very essential point*, for unless the pot is *well* filled with roots, a good flower cannot be obtained. In a month or six weeks, the latter being the better time, take up as many as are required for earliest blooms, and gradually inure them to the light before placing in the forcing pit; then, as soon as they show their colour, proceed with others in the same manner. The end of September is soon enough to pot the earliest sorts, repeating the operation every fortnight till the end of November, by which means a succession of flowers may be had until April. The finest flowers will be obtained from those not too strongly forced. If for exhibition, pot not later than the middle of October, and gradually bring them forward as before described; give them plenty of water, and use liquid manure in a very weak state twice a week.

Where they are grown in water procure *Tye's registered glasses* which are the most suitable for them, and are also very ornamental. The bulbs should be placed in the glasses by the middle of October—although later may do—and take care the water only just reaches the base; then place them in a dark closet, away from frost, for three weeks or a month, until the roots make some progress, after which inure them gradually to the light, and change the water *once* a week until they are out of flower. When putting the water in the glasses, pour some over the crowns; it washes off dust and other impurities from the foliage, and conduces to the general health of the plant. If these directions are followed, very different results will attend the labours of the cultivator than those which unhappily are so general.

Old English Vineyards.—It is surprising that so many modern gardeners, preferring their own experience to the most indisputable testimony, deny the existence of vineyards in this country in former days, and contend that something different from a field for growing grapes was meant by this name, or that some other use than the manufacture of wine was made of the produce. A passage in one of these letters exactly explains the state of the case. Busino, at Burleigh, was taken by Lord Exeter into his vineyard, and there, on tasting the grapes, and comparing their state of forwardness with the time of year, he expressed his fear that they "would never come to anything;" nevertheless, his noble entertainer told him that it was the family opinion they would make excellent wine. Possibly artificial means were then used to correct the excessive acidity, or it may have been relished from habit, just as the labourers in many districts enjoy the sour cider which cannot be tolerated by an unpractised palate and stomach. When the commerce and agriculture of the country improved, it was probably found that neither in quality nor in price could the home-made wines compete with those of foreign growth, and that the ground could be more profitably employed for other purposes.—*Quarterly Review.*

DIRECTIONS FOR THE SUCCESSFUL CULTURE OF THE MUSHROOM.

The value of the Mushroom as an article of food has long been known; and in the autumn, hawkers, in the neighbourhood of large towns, annually realise considerable sums by its sale. This, and the high prices which they fetch when they cannot be collected out of doors, has induced many to pay attention to the artificial cultivation of the Mushroom, who before thought little about it, and now Covent Garden is well supplied with them all the year round. The stimulus thus given to Mushroom culture, the increasing demand for spawn, and the numerous inquiries as to how to treat it, from those who have no proper Mushroom house, have induced us to think that the following instructions might be of service to such as are about to commence the growth of this much esteemed esculent:—

Horse droppings from the stable, having the long litter separated from them, should be collected; spread these rather thinly in an open shed or under cover of some kind, and turn them over occasionally, the object being to keep them dry and prevent their heating; when a sufficient quantity to make up a bed has been got, about one-third of the bulk of dry turfy loam may be added and mixed with the droppings.

Mushrooms may be grown in summer in any dark shed, outhouse, or cellar, and even out-of-doors; but in winter, where there is no Mushroom house, a warm cellar is required. Having prepared the place for the bed bring in the mixture, and let it be well trodden down, for the closer it is put together the longer will the bed keep in bearing. It should be from a foot to eighteen inches deep. When complete let it remain a week or so to ascertain how it heats. If the droppings have been carefully dried, however, the heat will never be very great. To ascertain the right heat for spawning, place the bulb of a thermometer five or six inches deep in the bed; if the heat rises above 110 degrees, holes must be made thickly in the bed to let out the heat. If, however, the bed does not get warmer than 90 degrees, or so, it may remain for a few days, when it may be spawned at once. Pieces of good fresh spawn, an inch or two square, should be inserted in the bed three or four inches deep, and about nine or ten inches apart. If there is any indication of the bed heating again, leave the holes open for a few days, after which close them, and beat all down firmly. The bed may now be earthed over with dry turfy loam and lightly covered with dry hay. If all has gone on right, the Mushrooms should appear about six weeks after spawning. Should the surface of the bed become dry, sprinkle it over with tepid water, but the less water at this early stage the better. A good bed will generally keep in bearing six weeks, and if a partial cessation should occur, a good watering with tepid water and covering the surface with hay for a week will generally induce a second supply.

When one bed begins to yield another for succession should be prepared, so as to keep up a continuous supply.—*From Butler and M'Culloch's Catalogue.*

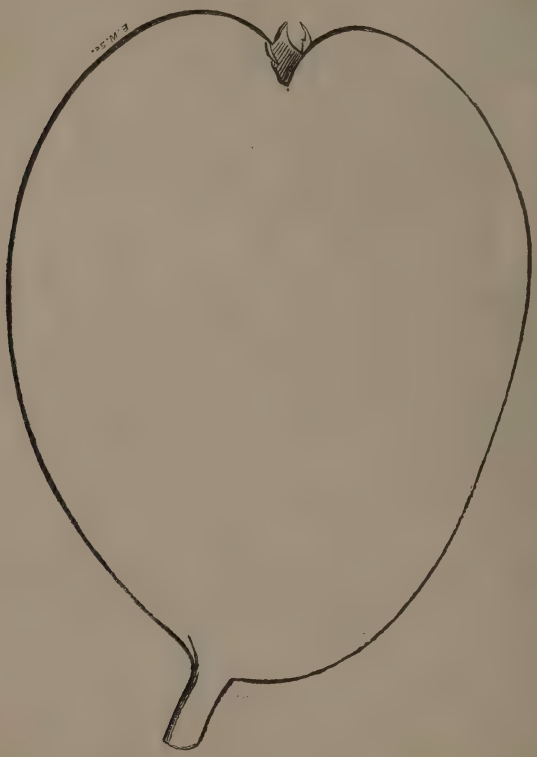
MESPILUS (NESBRIS?) JAPONICA.

The query of *Ignoramus* must be put in error. What is *Nesbris?* Is such a generic name anywhere to be found, and is it at all surprising the "Floral World" should say, "we have no knowledge of this plant?" Suppose a correspondent were to write an imperfect description of a fuchsia, saying, "it has dark green leaves, a flower remotely resembling a Turk's cap lily, and a fruit like a cranberry, but egg-shaped, and its name is Buchsias;" would not the gravest horticultural brain declare, "we know it not?" Nesbris has a very genuine look at first, and one would rather question one's own knowledge, than suppose the writer to be in error. But suppose we alter it to *Mespilus*, then we have a large-leaved tree, producing a fruit that might be bought in Jermyn-street, and that, from seed sown in June, 1855, might reasonably measure 12 inches in the stem in July, 1858. *Mespilus* is a member of the great family of Pomeworts, and is simply a Medlar—and who would expect a Medlar to lead one into a fog? *Mespilus Japonica* is a handsome tree, bearing large leaves, and quite hardy. As the plant referred to, may have been rather tenderly treated, it would be better not to turn it out this winter, and if *Ignoramus* wishes to fruit it quick, a bud from it should now be entered on a pear or hawthorn stock, already flourishing in good loam. It would make a pretty orchard-house tree, if grown on in a pot, and this winter it would be well to prepare a thorn or pear stock in a pot, expressly to bud with it next season; still keeping the original on its own roots. Prune it the same as a pear. S. H.

NEW FRUITS.

HUYSHE'S VICTORIA PEAR.

Now that the qualities of fruits are questions of interest, and the season for planting is arriving, we call attention to two very fine new pears which have been well proved, and may be recommended with the fullest confidence. Mr. Huyshe is the raiser of several first class seedling fruits, and among them two pears, respectively named, Huyshe's Bergamot, and Huyshe's Victoria. The latter is the best of the two, and is here figured. It is a great bearer, the tree of a robust habit and very thorny. The flavour is sweet and aromatic, and the flesh melting to the core. Its proper season is February, but perfectly ripe fruits were exhibited in December, last year. It is of the first class in every respect.

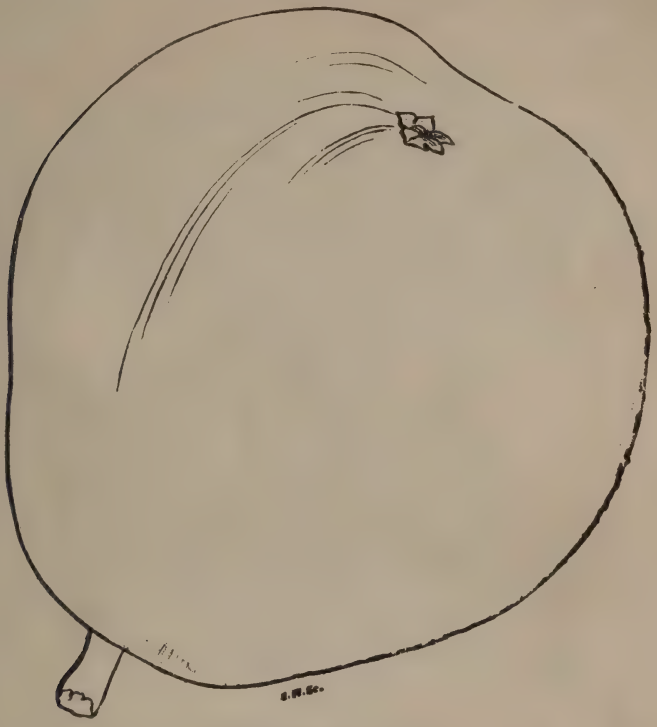


HUYSHE'S VICTORIA PEAR.

MATTHEWS'S ELIZA.

This fine pear was raised by the late Mr. Groom some years since, and is now in the possession of Mr. Matthews, of the Nursery, Clapham. It was shown at a December meeting of the Pomological Society, last December, and pronounced a handsome and valuable fruit. It is of the race of the Easter Beurré, and has some features of that

variety traceable in it, but it differs towards the eye. The skin, when ripe, is of a pale straw yellow, with a faint tinge of green; the flesh is orange yellow, very juicy, sweet, vinous, and melting. It does well as a standard, but may also be used as an espalier on a south or west wall.



MATHEWS'S ELIZA PEAR.

SEEDLING CALCEOLARIAS.

The cultivation of the Calceolaria from the seed requires a little extra care in the early stage of its culture. To insure success in the raising of seedlings, it is requisite to attend to the following directions as nearly as possible:—The seed should be sown in pots, prepared in the following manner:—the pot to be half filled with drainage, over that rough siftings of the mould, and the surface covered with soil as fine as possible, half of which should be composed of silver sand. When prepared thus, it should be watered with a fine rose, immediately after which sow the seed carefully without any covering of soil. The pots should then be placed under a close frame or hand-glass, in a shady part of the garden (no artificial heat being required). In large establishments, of course, they may have propagating, or other houses, that will do, where the same kind of moist temperature could be obtained, but any exposure to the sun must be carefully guarded against by mats or paper. If the situation is of the proper temperature, they will require watering but very seldom. Directly the seedlings are strong enough, they must be pricked off in pots prepared as before, and placed in the same situation: from the store pots they will require to be potted off singly; after this the plants will grow very rapidly. Through the winter, the plants will thrive well on the shelves near the glass, in the greenhouses; and, to obtain fine specimens,

they must be shifted on freely till the flower-stalks have started, and should always be smoked with tobacco directly the green-fly appears, as no plants in cultivation so readily suffer from this insect as the Calceolaria. It is necessary to remark, that one of the most frequent causes of the appearance of these injurious insects is the plant becoming *root-bound;* to avoid which evil, it is important that it should frequently be re-potted during the growing season.

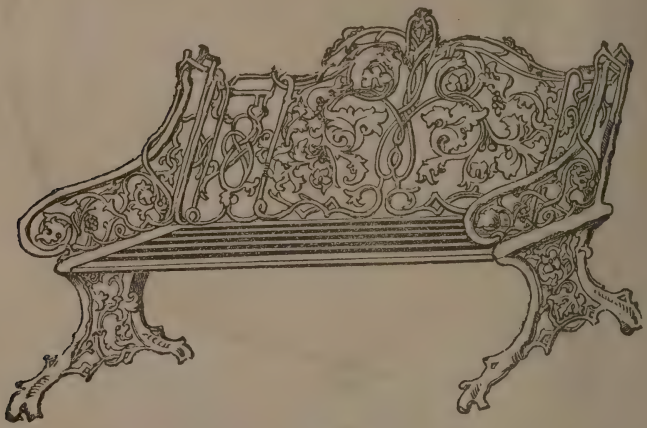
These remarks will apply also to the Cineraria, except that this plant is more hardy, and will thrive with less care.

E. G. Henderson & Son.

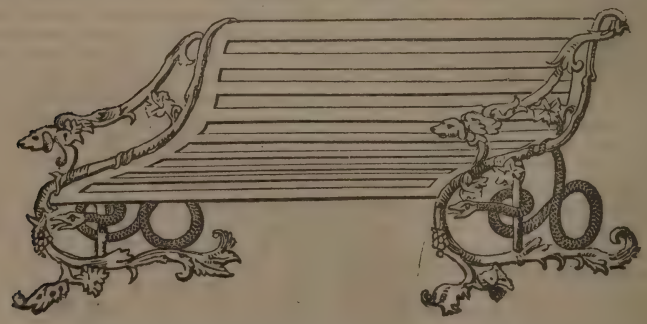
Wellington Nursery, St. John's Wood, London.

HORTICULTURAL IRON-WORK.

Among the many beautiful specimens of ornamental iron-work, exhibited by Messrs. Dray and Co., of Swan-lane, Thames-street, at the great Chiswick



Garden Show, the three subjects here figured, attracted our attention as worthy of special recommendation. The table is a fine example of design in metal, and admirably adapted for use in a conservatory or summer-house, or as a window ornament, on which to stand tasteful ornaments, pot-plants, a Wardian case, or an aquarium. The pattern is free and graceful, the hard tone of the metal being thoroughly subdued by the artist, so as to give the floral lines an agreeable softness to the eye. It turns on the pedestal for the examination of



objects, or to present the several sides of a plant case, if placed upon it, to the light without the necessity of lifting. The iron garden-seats, are, as the engravings show, admirable example of the same class of art-manufacture, and do credit to the old-established and well-known house of Dray and Co. [Price of table, 36s.; garden-seats, 35s. and 40s.

HORTICULTURE IN THE AUSTRALIAN COLONIES.

Now that the horticulturists of the "old country" are looking forward to the annual chrysanthemum fêtes, it may be interesting, as exemplifying the progress of horticulture in the opposite hemisphere, to make a note of the exhibition of the Horticultural Society of Hobart Town, on the 7th of May last, a report of which in the *Hobart Town Daily Mercury*, recently came to hand. The season was late, and the show of flowers was not quite up to the mark, but fruits and esculents, the products of the colony, were very fine, and the judges declared they had never seen finer apples and pears. In the list of prizes occur the following pot plants :— 1st, single specimen, Dipladenia urophylla Mr. Hollinsdale; 2nd, Amaryllis, Mr. Chatterton; 2nd, three chrysanthemums, Mr. Lipscombe; 3rd, Euphorbia splendens, Mr. Hollinsdale. Cut flowers: 1st, 12 dahlias, Mr. Naughton, jun.; 2nd, chrysanthemums, Mr. Lipscombe; 3rd, Dianthus chinense, Mr. Haywood; 3rd, marigolds, Mr. Hollinsdale. In the awards for fruits, Scarlet Nonpariel, French Crab, Rhode Island, Greening, Winter Ribston, and Court Pendu Plat apples, occur; Easter Beurré, and Bergamot pears, Keen's seedling strawberries; and among the vegetables, all the sorts which usually figure at our summer and autumn shows.

GRAPE PIE.

Our old sweet-water vine, which festoons our kitchen windows, and makes our goat-shed glorious to behold, usually produces from 300 to 500 bunches of grapes every season. This year it has given the full complement, for it has produced and ripened not less than 500 very fine bunches of grapes. My husband is an enthusiastic gardener, and when the vine bloomed, he prepared to "thin it," for it is his rule never to allow any tree to ripen a heavy crop of fruit. But I caught him in time: as he mounted the ladder, scissors in hand, I seized him by the leg, dragged him from his proud perch, and put a veto on the vine question, by insisting on allowing the whole crop to come to maturity. Now, I was right; for, instead of having 150 bunches of only middling grapes, some of which the wasps will spoil before we gather them, and many more of which will spoil before we eat them as a table fruit, I have my full number of 500, of which I am proud I assure you, for they are nearly as fine as if they had been thinned to a third of the number, and "the governor" has his greenhouse Hamburghs to depend on for handsome bunches for the table.

But what am I to do with them? Ah! that's the point I'm coming to. I am dashing away at grape pies, using them in the same way as green gooseberries, which, when cooked, they somewhat resemble in flavour, but finer, and even more palatable. Now, by using them in this way, I shall be able to keep the table supplied with a most acceptable kind of pastry, for, at this season of the year, acid fruits are scarce, and any one fond of gooseberry pies, or tarts, will declare grape pie to be far superior, and they can be used for such purposes long before they ripen, so as to thin them regularly, without any sacrifice, allowing the best bunches to ripen fully, for storing, or giving away.

Now, out-door grape vines are common enough, and it may be useful to many who possess them, to know that grapes, imperfectly ripened, or that are not of high quality for dessert, may be turned to good account in the family, for such an agreeable purpose.

People give up rhubarb as soon as gooseberries come in. I use it all through the season, and till late in the autumn, and its flavour is so fine during July, August, and September, as to bear no comparison with the insipid stalks we are so glad of in spring. Of course, we pull only the young stalks, and take care not to distress the plants. This plan enables me to preserve a large quantity of summer fruits for winter and spring.

An English Wife.

SEPTEMBER WORK IN THE GARDEN AND GREENHOUSE.

Now that the season is nearly over, it is well to make a review of plans, stock, and appliances, with a view to improvements and economy. While the foliage remains on the trees, errors in planting may be noted down for remedy, and the best places chosen for all shrubs and trees it is intended to plant this fall or next spring. The autumn hues, which increase and deepen as the flowers depart, give quite a peculiar interest and beauty to plantations and shrubberies, and in all arrangements in regard to planting, the autumnal effects of contrasted tints of foliage should be considered, and for the next two months, we have every opportunity of observing how much variety, and how many charming effects may be obtained by a judicious assortment and grouping of trees and shrubs In regard to bedding-plants, the most accurate estimates may be formed as to the suitableness of the kinds which have been used this season, for soil and climate, and local circumstances, as well, also, as to blendings and contrastings of colour, and the methods adopted in planting the beds. Where stock is wholly or partially raised at home, the gardener should now have a tolerably accurate idea of the varieties and quantities required for next season, that sufficient of each may be secured and no more; for to be burthened with twice or thrice as many geraniums, verbenas, &c., as are likely to be wanted, is as bad, or, perhaps,

worse, than having too few. Whatever alterations are to be made in garden plans, too, should be definitely determined at once, so that the ground may be trenched up, and deciduous trees got into their quarters before the earth begins to cool, and walks, excavations, &c., made, before unfavourable weather begins to interfere with such operations. Delay is a more frequent cause of failure in every department of gardening, than all others put together. Trees planted in spring, never do so well the next season, as those got in in autumn; rotation crops of all kinds, do better on ground that has been ridged up betimes, and exposed to the autumn rains and winter frosts; for the deluging rains with which our winter usually commences, are as fertilizing as manure, and no time should be lost in trenching over all unoccupied plots, and getting the ground everywhere into order.

Kitchen Garden.— The winter stock sown last month, will now be coming forward for planting out. Where onions have been cleared off, is generally the best place for cabbages for spring use, because the ground having been well manured for the onions, is in good heart, and yet, so far relieved of manure by the onions, there will be no fear of a rank growth, such as will cause the plants to suffer from frost. Plant out, as spaces become vacant, first digging deep, and leaving the surface rough. The planting, however, must be firm, and damp weather should be chosen for it. It is too late now to sow any more winter greens or onions, and if the stock is short, it will be better to get a supply of plants, than waste time and patience in sowing. Thin winter spinach to six inches from plant to plant; thin the rows of lettuce that are to stand the winter: but not severely, because, in the event of severe frosts, the plants protect each other, if somewhat close together; on the same principle, broccoli and cauliflowers left to risk it in the open ground, should be not more than fifteen inches apart each, and the ground for them should not, at this season, be very rich, or they may suffer in severe weather. We generally plant the spring broccoli without manure, and in the spring, as soon as they commence their new growth, give them regular waterings with house sewage, and so secure fine heads; cabbages we treat the same, so as to avoid the necessity of manure in the autumn, which renders them tender in exposed situations. Earth up celery as the rows require it, in dry weather, but if not well grown, give plenty of liquid manure, and postpone the earthing-up till the plants have made good substance. This is the best time to form new beds of horse-radish, the crowns to be planted fifteen inches deep, and six inches apart, in very rich and well trenched soil. Continue to sow saladings, and gather seeds as fast as they ripen. Potatoes to be taken up as the tops wither; carrots and beet-root may remain till the frost cuts off the foliage, and no longer, but parsnips may be left in the ground, and trenched out as wanted for use, unless the ground is required, in which case, store them in sand.

Flower Garden. — Remove decayed flower-stems, and keep the borders clear of weeds, so as to prolong the season as much as possible. Plant out pinks and carnations, and rooted cuttings of herbaceous plants. The beds of seedlings must be looked over and thinned, and the thinnings planted in fresh plots of newly-dug, and firmly trodden ground. This month commences the season for planting bulbs. The first lot of hyacinths and tulips should at once be got into pots and plunged in coal-ashes, or coarse sand, so as to quite bury them, and keep them only moderately moist, and as much as possible free from the action of the atmosphere, so as to induce a root action before the foliage is produced. Hyacinths may also be planted in beds and borders, but tulips should not be put into the open ground till next month. A very effective way of using hyacinths, is to put them in patches of seven, one in the middle and six round it, every separate patch to be of a different colour. Cuttings of bedding-plants may still be taken freely, but there should be no delay, or they may not be well rooted before cold weather sets in. This and next month, are the best times for striking calceolarias. Take off the young shoots from near the bottom of the stool, and pot them pretty close together in five-inch pots, well drained, and filled up to near the rim with a mixture of peat, loam, and sand, equal parts, and half an inch of pure sand on the surface. China roses may also be struck now in pots in the greenhouse, and they do safest under hand-glasses. A second bloom to last till Christmas, may be obtained from fuchsias, by cutting in the young wood, and giving the plants a little heat to start them afresh. Geraniums struck early in the summer, will now be coming into bloom, to keep the greenhouse gay all the winter. Chrysanthemums now require very regular attention, to see that they have proper supports and are tied out regularly. As they bloom in

the season of gusts and heavy rains, their beauty is often spoiled for want of timely care in this respect. Give them strong manure-water twice a week, to promote the swelling of the bloom-buds, and in bright weather drench them overhead with pure soft water, morning and evening. Sow hardy annuals for early bloom next season, choosing poor, hard ground, which is not to be dug but simply raked over.

GREENHOUSE.—All plants that require to be well ripened before being housed should have free exposure to sunshine under a south wall, so as to set the wood hard and prepare them for receiving the stimulus necessary for early growth. Cinerarias, Chinese primroses, and other plants for early blooming indoors, should have the best places in the house, but there should be no coddling, or undue haste in pushing them into growth; plenty of light and air, will induce a close habit, and robustness of constitution, that hereafter will result in the production of an abundance of fine bloom.

STOVE.—Keep pines in as free a growth as possible, by means of manure water, and a moist atmosphere while the weather is bright, and dispense with shading for the season, so as to induce a stocky habit, and thus avoid losses in the winter. Succession stock must be kept in growth, to prevent too early a formation of fruit. In vineries, shade the fruit that is to hang any length of time, and give air, and keep the house as cool as possible. Where the fruit is not ripe, use fire moderately, but at the same time keep a look out against insects. Vines that fruited early, will now show a disposition to break, and should be encouraged very gently. Bottom heat for pines in growth, 84 degs.

TO CORRESPONDENTS.

LIST OF HARDY PERENNIALS, ETC.—*C. R. S.*—It is almost too late now to raise perennials for next year to have them strong; but hollyhocks, wallflowers, sweet Williams, antirrhinums, phloxes, silenes, arabis, alyssum, aquilegias, perennial poppies, perennial asters, aubretias, daisies, perennial valerian, campanulas, centaurea, cistus, delphinium, dianthus, eschscholtzias, hardy gaillardias, perennial lupins, forget-me-nots, penstemons, potentillas, saxifrages, veronicas, and violas may still be sown, and will have the best chance if in pots, and kept in frames all the winter. If sown in the open ground, a dry slope would be the best place, and some seed should be saved to sow early next spring, and the majority will bloom the same season. Order sorts of any good seedsman, and you will be sure of the most showy varieties. Lovers of fine sweet Williams should secure a stock of plants from Mr. Hunt, of High Wycombe, Bucks. He is now sending them out at the rate of 50 for 6s., from the finest strains in the country. For flowers to come between the spring bulbs and May-day there is a great need. The yellow alyssum and the purple aubrietia are two splendid things, and make a most beautiful contrast if in contiguous patches. Daisies and anemones are useful; cinerarias would be if they were good bedders in April. Delphinium pictum sometimes blooms in March, but is not to be depended on. Cowslips, primroses, and violets, especially the double sorts, are good early bloomers. Belgian daisies, kept over winter in frames, and encouraged to bloom early, make a splendid show in April, and many of the hardy species of scilla make beautiful patches of colour from March to May, to vary the effects of other hardy bulbs blooming at the same period. Early and late tulips, planted in patches in the border, increase the glow of colour, and continue it till the season of summer flowers. On your north-west wall plant hedera regneriana and cotoneaster mycrophylla, the latter bearing abundance of red berries, to cover the lower part, and the ivy to run to the top. The white jasmine, Virginian creeper, and common clematis will do well there, but are not evergreen.

DIFFICULTIES OF A CHALK SOIL.—*E. G.*—To grow roses in such a soil as you describe, and in a district where loam is not attainable, is, indeed, a difficult matter. You must certainly not have one rose worked on a brier stock, nor must you venture with expensive roses of any kind, unless you can positively make a soil for them. Cabbage roses, and hybrid Chinas, on their own roots, are those with which you have the best chance. Of worked plants, those on the Manetti stock are the most likely to answer, as this often flourishes on very poor soils. You must do all you can to improve your flower-beds by the addition of leaf-mould, sheep-dung, and whatever other manures you can get, and your gardener should be instructed to use the house sewage freely, as supplied to him every day, diluting it with clear water. The mowings of grass lawns make useful mulchings, to retain moisture on the surface, and, perhaps, you might get some charred parings from some of the adjoining wastes, which would form an admirable basis for a soil for flowers. By the formation of a muck-pit, to which green stuff, and dead leaves, and all kinds of waste, should be carried, and on which the house sewage should be poured when not wanted for the garden, you may, every spring, refresh your choicest plots with a rich and retentive compost. By all means, avoid American and heath plants, which detest chalk, and use abundance of water, as far as your supply enables you. It takes time to create a surface-soil on so poor a bottom; but, in time, it may be done, and the way is, to economise every scrap of material, animal and vegetable, that will rot into mould. Concrete paths are the best for you. By referring to page 20, you will see how to make it, and, in place of gravel for the surface, any hard stony material, of a suitable colour, that the district will afford you, rolling it in well with sifted chalk, or lime, and choosing damp weather for the operation.

CALCEOLARIA SPECIES.—*Novice.*—The following extract, from the treatise on the Calceolaria, in "Garden Favourites," gives just the information you require:—"The Calceolaria is a native of high altitudes on the mountains of Peru and Chili. The first species seen in Europe was introduced in 1773: it was *C. pinnata*, a greenhouse annual. The next, *C. Fothergillii*, was introduced in 1777, from which date no oth

species made their appearance till 1822, when no less than four new species, two of them under-shrubs, enriched our collections. As soon as hybrids of these were obtained, they became special favourites, winning popularity as much by their curious form, as by their elegant habits and lovely colours. There are many distinct species of Calceolaria known in collections, and the characteristics of some are very distinct. *C. alba*, and *C. Floribunda*, were introduced from Chili, by Mr. Lobb, in 1842; *C. violacea*, of a pale purple, and *C. Sinclarii*, the New Zealand species, have been but lately introduced; *C. ericoides*, the heath-like Calceolaria, is a wiry, woody shrub, partly upright, partly procumbent, and studded with hirsute blossoms of a bright yellow; but those in most request by florists are the varieties of the shrubby *fruticosa*, and the many gay descendants of *corymbosa*, and *arachnoides*, of which the typical form has long been lost, in the many hybridisings the flowers have undergone."

Choice Bulbs.—*W. B.*—All soft bulbs, such as Lilies, Crown imperials, &c., should be kept out of the ground as short a time as possible. Small bulbs, such as *Lachenalia*, *Anomatheca*, &c., may be shaken out of their pots, when the foliage has quite died down, and stored away in bags, till they begin to break naturally, when they must be again potted, and but just covered. The reason why many lose their stock of such things, is because they drench them with water immediately after potting, whereas, until they have made pretty good roots, they should have very little moisture. In our bulb closet we have now hundreds of small bulbs in linen bags, the whole of which will soon be flourishing in pots in frames. Where there is any doubt, however, keep them in the pots quite dry, and laid on their sides; as soon as they move, re-pot them, handling them tenderly, so as not to bruise their new roots. *Cyclamen persicum* is best so managed, to be shifted into larger pots, of a size proportionate to the bulbs, and not quite covered with soil. Bulbs will now claim our special attention, and as they are not half so much grown as they should be, we shall endeavour to increase their popularity by giving plain and safe directions for their management,

Roses on the Manetti Stock.—*C. D.*—Failures in the use of the Manetti stock, have, in almost all cases, been the result of a mistaken estimate of its uses. It will not make mop-headed standards such as are grown by budding briers on the upper branches. The bud should always be entered close to the collar of the stock, in order that in the future planting, the rose may be covered with soil, without plunging too much of the true bark of the stock. When worked with suitable sorts, nothing can surpass it as a stock, for it is a prodigious rooter, and will feed a fast growing rose on poor soils, where it would perish if on its own roots. But, by planting the entered bud below the surface, the next season after budding, the rose makes roots of its own, and so grows more naturally. There is, in fact, less of that disagreement between bud and stock, which, in many cases, is the cause of the failure of worked roses. It does not follow, however, that, if planted above the surface the bud should fail, and we should not advise you to move the plants until they have gained strength—say not till the autumn of 1859. What could induce you to turn out budded roses in the month of July?

American Blight.—*C. D.*—We had this spring to deal with a number of old apple trees, completely eaten up by cotton blight. We made a strong brine, and had the trees scrubbed with a dandy brush dipped in it, first spreading mats on the grass, and covering up the shrubs within the reach of the splashes. A few of the branches were killed by the salt, but the trees were so much benefited, that they have since made a good deal of new bark, and are now pictures of health. They were not washed till after the fruit was set. We should advise you to try the same process this winter. The dressings of lime and sulphur last winter, no doubt did good, and a second course of treatment will still further cleanse the trees. The dandy brush, vigorously applied to the stems, is very beneficial. The insects retire to the ground in the winter, therefore the roots should be laid bare for a few days, and, before the earth is returned, it should be saturated with ammoniacal liquor from the gas works. On your soil, and with so little rain, the trees ought to be mulched every winter with rotten dung, and, in summer, the grass mowings spread round the roots, would be beneficial.

Hollyhock Seed.—*Scrutator.*—Double hollyhocks give plenty of seed, and the plants raised from well saved seed, come pretty true to the parent. Take off the pods when ripe, and hang them in bunches in a dry room till March, then rub them out, and sow in shallow pans in a gentle heat. Cut down the stems as soon as you have got as much seed as you require, and apply no mulching till spring, for damp at the collar often causes the destruction of hollyhocks in winter. You will see that Mr. Chater, in last month's number, advises the removal of the mould round the neck of the plant, and filling it in with silver sand. In your fine Irish climate such precautions may be unnecessary. On the wet clay soil of our own garden we dare not trust fine hollyhocks in the open ground all winter, so they are taken up in October and potted, and kept in frames till March. We thank you for your expressions of regard, and are glad to have been the means of enabling you to make so much progress in gardening in so short a time. Happily you are not the only one who has thus benefited by the publication of the "Floral World."

Geranium Cuttings.—*A. B.*—Yes, in the open ground, full in the sun, without shade, glass, or any kind of screen. We have now hundreds of geraniums in full bloom from cuttings so struck in June last, and those struck in July and August this season, will make our winter promenade as gay all the winter as the beds have been through the summer. There is not one of the scarlet breeds, that is, of the horseshoe class of geranium, but roots best, and makes the strongest plant to stand the winter if struck in the full sun; and if watered every evening in dry weather, they hold up their heads on the third day, have roots on the sixth or seventh, are fit to move into pots on the fourteenth, or if struck in thumbs, want a shift to sixty's in three weeks. Pelargoniums require shade, and more coddling, and must be struck earlier, but most of them will strike in the sun from ripe joints at the time the plants are cut in.

Lily of the Valley.—Farfugium Grande.—*Subscriber.*—The Lily of the Valley is a capricious plant. In some places, it flowers abundantly without the least care and spite of utter neglect; in others, every attempt to bloom it fails. The orthodox mode of growing it, is to plant in February in a north aspect, in a compost of sandy earth and leaf-mould, and to place the roots four or five inches apart, and two inches deep. One secret of success is never to disturb them. We have seen them blooming splendidly in flower-pots in a kitchen window where they remained in the same pots, and same soil for six or seven years.—*Farfugium grande* is said to be quite hardy, but it would not be wise to turn

out a plant just received from the nursery at this late period of the season. It is propagated by division of the root.

CUCUMBERS.—*Tyro.*—The gourd family have been playing some strange freaks this season. Your case is the case of hundreds. The cause of the leaves turning yellow, and the fruit falling off, seems to be atmospheric and general, and hence, scarcely admitting of remedy. We see the failure of some particular crop every season, and, this season, the failure is in marrows, melons, and cucumbers. Your management has been good. Thompson's "Gardener's Assistant" is the book for you.

HUMEA ELEGANS.—*Q.* desires us to ask if any of our readers have experienced the effect of this plant in producing an erysipelatous, or rose-like eruption on the skin? "In several instances which have come under my observation lately, the handling of the leaves of the Humea, as in removing withered ones from the stem, has caused such an eruption on the face and hands, by contact, or even by the vapour from extravasated sap."

SEEDLING POTATOES.—*S. Stocks.*—You are acting wisely in raising seedlings, and we hope you will, in time, get a stock from the best. To prove useful, they ought to ripen early, and keep well. Since the disease has rendered the potatoe a precarious crop, early sorts have been much in request. Your crop of shallots, thirty-eight to a plant, is good. Of the fuchsia, we can form no opinion from your description.

AUSTRALIAN FLOWER.—We cannot name the beautiful poppy-like plant sent by a correspondent, and said to be very scarce in Australia.

METEOROLOGICAL CALENDAR FOR SEPTEMBER.

30 DAYS.		WEATHER NEAR LONDON, SEPT., 1857.					30 DAYS.		WEATHER NEAR LONDON, SEPT., 1857.				
		BAROMETER.		THERMOM.	WIND.	RAIN.			BAROMETER.		THERMOM.	WIND.	RAIN.
		MAX.	MIN.	MX. MN. MN.					MAX.	MIN.	MX. MN. MN.		
W.	1	29.676	29.822	76 48 62.0	W	.14	Th	16	30.210	30.197	78 44 61.0	SW	.00
Th	2	29.615	29.519	64 44 54.0	W	.28	F.	17	30.216	30.186	81 45 63.0	SW	.00
F.	3	29.541	29.527	63 41 52.0	S	.49	S.	18	30.252	30.156	75 40 57.5	N	.00
S.	4	29.629	29.505	66 44 55.0	SW	.01	S.	19	30.371	30.329	65 45 55.0	NE	.01
S.	5	29.730	29.522	72 43 57.5	SW	.00	M.	20	30.353	30.323	69 33 51.0	E	.00
M.	6	29.876	29.836	73 42 57.5	SW	.01	Tu.	21	30 261	30.197	72 43 57.5	NE	.00
Tu	7	29.848	29.709	75 51 63.0	SW	.05	W.	22	30.191	30.159	68 47 57.5	NE	.00
W.	8	29.561	29.474	69 49 59.0	SW	.60	Th	23	30.088	29.958	74 42 58.0	E	.01
Th.	9	29.589	29.533	73 54 63.5	SW	.29	F	24	29.852	29.778	73 51 62.0	SW	.12
F.	10	29.692	29.658	74 55 64.5	SW	.24	S.	25	29.860	29.773	72 45 58.5	S	.14
S.	11	29.583	29.543	60 43 51.5	SW	.68	S.	26	29.931	29.836	69 48 58 5	SW	.00
S.	12	29.735	29.627	72 46 59.0	SW	.08	M.	27	29.925	29.824	71 50 60.5	SW	.12
M.	13	29.963	29.842	73 46 59.5	W	·05	Tu	28	29.934	29.794	70 36 53.0	SW	·04
Tu	14	30.125	29.986	72 48 60.0	S	.15	W.	29	30.073	29.940	72 36 54.0	S	.00
W.	15	30.204	30.133	74 55 64.5	SW	.00	Th	30	30.028	29.957	69 43 56.0	SE	.00

AVERAGES FOR THE ENSUING MONTH.

IT was in September, last year, that the unusually high temperature of the season began to show its most decided effects. The second week of the month was 1½° above the average; the third week, 2¾°; and the last two weeks, 1°; so that the temperature of the whole month was nearly 2° higher than usual. This following a hot summer, prolonged the growth and blooming of most garden plants, and, on no occasion did the thermometer, even on the coldest nights, sink to 32°, which it frequently does, even in July and August, and in good seasons. During sixteen years past, the averages of September have been as follows:—Average maximum temperature, 67°; minimum, 40°; mean, 56½°. Average temperature of dew point, 51°; which is three degrees lower than the two preceding months. Average barometer, 30.019. Average fall of rain, 2.1 inches; nearly the same as July and August. During the past 31 years, the highest temperature observed in the month of September, occurred on the 12th, 1846, and the 17th, 1843—thermometer 84°; the lowest on the 27th, 1828—thermometer 24°. On the 26th, 1855, the thermometer registered 26°; and, on the 7th, 1855, 28°.

PHASES OF THE MOON FOR SEPTEMBER, 1858.

● New Moon, 7th, 2h. 15m. p.m.
○ Full Moon, 23rd, 3h. 20m. a.m.
☽ First Quarter, 15th, 5h. 16m. a.m.
☾ Last Quarter, 30th, 1h. 51m. a.m.

MEETINGS AND EXHIBITIONS, SEPTEMBER, 1858.

WEDNESDAY, 1st, Aberdeen Horticultural; Stoke Newington.—THURSDAY, 2nd, Dublin Royal Horticultural.—TUESDAY, 7th, Alnwick; Hereford.—WEDNESDAY, 8th, Bristol and Clifton; Colchester; Crystal Palace; Hexham; Stamford.—THURSDAY, 9th, British Pomological; Crystal Palace; Hexham.—WEDNESDAY, 15th, Brighton; Oxford; Whitby.—THURSDAY, 16th, Brighton; Dumfries.—THURSDAY, 23rd, British Pomological; Chepstow; National Dahlia Show, St. James's Hall, London.—SATURDAY, 25th, Kirkstall Abbey, Leeds.

*** *Secretaries will oblige by forwarding Announcements, Schedules, &c., of forthcoming Exhibitions.*

THE

FLORAL WORLD

AND

GARDEN GUIDE.

OCTOBER, 1858.

UR enjoyment of the gay spectacle produced by a tasteful assemblage of thousands of Dahlias, at St. James's Hall, on the 23rd of last month, was, in a great measure, marred, by detecting, in numerous instances, evidences of fictitious excellencies, conferred upon the blooms by the expert fingers of exhibitors. Divesting one's mind of the prejudices of florists, and the rigid laws of properties by which judges determine relative merit, a flower show will always make an appeal to the moral sense, as to what is fair and honest, and what is trickery, in floral competitions. Pope's well-known lines on vice apply very forcibly to the ethics of our competitive meetings. A beginner in such things at first despises the arts of the man whose side-board is covered with silver cups, but, finding himself beaten, time after time, by flowers no better grown, but very differently shown, he begins in time to try his hand at such manipulations, and his progress in the art of dressing is accompanied with a steady ascent in prize lists, and he at last gains a premier place, not by increased skill in culture, but by mastership of the tweezers. How many of the vast number of magnificent dahlias that were so admirably grouped on the tables of the National Dahlia Show, were in precisely the state in which nature had fashioned them? How many had been denuded of green centres, and false petals, and so dressed up for the occasion, that they presented appearances altogether foreign to their character, as the simple result of careful cultivation? It might be an awkward affair, if every exhibitor of dahlias, chrysanthemums, carnations, and auriculas, were required to give a faithful report of every process through which his winning flowers had passed, from their first formation in the bud, to their final achievement of a triumph for him in a well contested competition. So awkward, indeed, is this whole matter, as to its moral issues, that it is

rarely broached as a subject for discussion; exhibitors seldom refer to it in their confidential conversations with each other, and the great world of plant buyers are, as much as possible, kept in the dark, as to the mere fact of the performance of such practices.

Among experienced florists, who know all the defects to which flowers are liable, when judged according to the florists' standard, there is, perhaps, no moral obliquity in exhibiting them cleverly dressed; but, as the chief object of exhibitions—at least, as far as the trade is concerned—is to keep alive, and extend the love for flowers, among those who are likely to become purchasers, every adventitious excellence, and every concealed defect, is to be reprehended, as likely to lead purchasers into error in their selections, and hence bring discredit on the craft of gardeners. It is all very well for those who are "canny" in such matters, to assume that amateurs know, or ought to know, the peculiarities of individual flowers; but the truth is, that those who have made some progress in floral criticism, have, through the performances of the gouge and tweezers, generally paid pretty dearly for it, and those who have no such experience, are likely to be grossly deceived, to their cost, if they begin by purchasing from stands at exhibitions. We do not deny but that a dressed flower has a much more beautiful and complete appearance than one of the same variety shown in its original state, supposing it to be one of those that need help from a dexterous hand; but the question is, are we to give full license to exhibitors to do as they please with their flowers, and let it be publicly understood that the dresser need do nothing in secret—or are we to require that every flower shall be shown, just as it was produced by the parent plant, and as it will again be produced, if properly grown in the garden of an amateur purchaser. Suppose a person, not very learned in dahlias, were to select Fanny Keynes, Queen Victoria, Midnight, or Captain Ingram, relying on the utter absence of a green centre, as one criterion of their excellence. What would be his surprise and disappointment, when his plants came into bloom, to find that every flower on his selected sorts, had the very defect of which he thought them so free. He would probably account himself less able to bloom a dahlia properly, than the competing florist; he would hardly imagine that the flowers on which he set his heart with so much hope to equal them the next season, were presented to him with a false face, with, in fact, their eyes gouged out!

The practice is universal; every exhibition is a new example of it, yet it is just the one fact connected with flower shows, about which nobody has a word to say—mutually understood, it is dealt with as a secret—mutually practiced, it is guarded by silence. Take a dahlia flower that is known to form a hard eye:—It has the green scales pricked out from the centre, at an early period of its growth, and the vacancy is in time filled up by petals, so that when shown, it bears the description, "well up in the centre." If the grower has neglected to remove the scales during the growth of the flower, he may, at a late period—even on the day of the show—use the gouge, which scoops out the green centre entire, and with a little manipulation with the tweezers, the hollow is hidden by the petals that surround it. Petals that have come false in colour, which is a defect common to dahlias, are dexterously plucked out, and if the petals crowd each other, a number of them are removed, and those that

remain are symmetrically arranged, so as to produce the semblance of a perfect flower. With other flowers similar practices prevail, according to the rules on which judges usually act. A polyanthus or auricula, containing more than a certain number of pips in the truss, is placed below others that have the standard number, supposing other points to be equal; hence, one of the arts to be studied by the auricula grower, is the removal of pips in such a way that the mutilation will not be apparent; then the pips themselves are flattened and disposed in an order quite different to that in which they were produced; so that when we praise the exhibitor for his fine stand of flowers, we must not fail to add an enconium for the little pair of scissors, which had so much to do with the development of their perfections. The operation of dressing is even carried so far as the removal of petals, and the insertion of others in their place to make up the requisite number, but there are few men bold enough to own to having done it. Indeed, in the face of avowals, judges could not award prizes for fictitious excellence, and so judges and growers tacitly agree to join in a chorus of "Oh, no, we never mention it!"

Next month, the chrysanthemum exhibitions will, as they always do, excite the admiration of the flower-loving public, and the praises of floral critics. The chrysanthemum is as much the subject of nefarious practices as the dahlia, and if a simple-minded amateur, who would scorn to impress upon his flowers any other character than that given them by nature and his own cultural skill, chooses to compete against old hands, all he will gain by it is a sense of bewilderment, that the same varieties which he exhibits precisely as he cuts them from the plant, are shown by others in a way which leaves him no hope of success, though intrinsically they may even be of less excellence than his own. First, the eyes are extracted, then the petals are beat inwards with an ivory instrument which nips them firmly without injury, and row after row are operated on in succession till they are all "up," and the flower is exquisitely incurved. This not only alters the form and proportions of the flower, but the colour also, for the backs of the petals only are seen; hence, as seen on the exhibition table, the flowers are altogether different from those that remain on the very plants from which the dressed samples were cut. A chrysanthemum show, therefore, does not exactly present us with means of contrasting varieties as to their genuine merits as objects of cultivation, but as to their capability of being twisted into extra-natural shapes, according to the fancy and manipulating skill of the exhibitor. Even in inserting the flowers in the metal funnels, a dexterous exhibitor knows how to improve their appearance, according to their several peculiarities, and if a flower does not incurve well, he gives it an extra pull, so as to tighten the base of the flower in the neck of the funnel, by which means the petals converge inwards, take the shape which is most prized, and, perhaps, hide an ugly eye, which might, if seen, tell against it in the competition.

This system is not without its advocates when the subject is thrust into notice, but, as a rule, it is thought advisable to avoid reference to it as much as possible. If it is attended with any benefit, except to those who directly profit by it, why should not the limits of "dressing" be defined, so that we may at any time determine if an exhibitor has

disqualified himself by carrying the operation a little too far? If it is difficult to define what constitutes a *bona fide* preparation of flowers for exhibition, what guarantee have the public that they will not be imposed upon in making selections from subjects exhibited? Are we to give the prize to the most expert and patient cultivator, or to the man who is most clever with the pliers? Are we to understand that if we see a new flower and determine to add it to our stock, perhaps, at a very high price, we are first to pluck it from its bed of moss and tube of water and cut it in pieces to see whether it is a real thing or a dressed up sham? When the expenditure of large sums of money turns on the possession by the subject of the purchase, of certain qualities which were conveyed to it by sleight of hand, and which it never possessed inherently, is the sale an honest one or a fraud? These are grave questions, and some day they will have to be answered. Possibly no code of rules will ever suffice to determine how far a man may improve the appearance of an object intended for exhibition, but that is no plea for winking at practices which are carried so far as to disgrace floriculture, and render it, in at least one of its aspects, a trap for the unwary.

The September Show at the Crystal Palace was as gay as any that have been held there this season, and far surpassed the autumn show at the same place last year. The several classes of plants were most artistically staged; stove and greenhouse specimens were abundant and fine, and the stands of fruit exhibited samples such as were never excelled at any time in the history of exhibitions. A good feature was the profusion of bedding-plants, though the exhibition of these in pots is hardly a fair way of testing their merits. In the section of variegated plants the most notable were Farfugium grande, of which there were many fine specimens; Berberis furcata, evidently an admirable thing for pot-culture, and Veronica variegata, the latter shown by Mr. Page, gardener to W. Leaf, Esq., of Streatham. The Ferns and Lycopods were exquisitely beautiful, and alone worth the visit of any who would divest their minds of the necessity of colour as an element of vegetable beauty. Mr. Sim, of Foot's Cray, took the first prize with Lastrea filix mas, *var.* palacea; Athyrium filix femina, *var.* multifidum; Athyrium filix femina crispum; ditto depauperatum, Scolopendrium vulgare, digitatum, undulatum, lobatum, lacceratum, &c., all cheap and easily grown varieties brought to such perfection as, perhaps, was never equalled before. The prize of £5 5s., offered by Mr. Stainton, for the best collection of 20 British ferns, was won by Mr. Baillie, gardener to W. C. Carbonell, Esq.; Mr. Baillie was also first in the amateurs' section for Exotic ferns, and Mr. Veitch first among nurserymen. In this section Mr. Sim exhibited a splendid plant of Nephrodium molle corymbiferum, a new fern, of which we give an engraving in the present number. Selaginellas or Lycopods were shown in great numbers, and in rare beauty: the first prize was awarded to Mr. Burney, of Stratford. Cut flowers, generally were good. Mr. Chater took first prize for hollyhocks, and Mr. Paul second. Cut roses looked very fresh, and stood well till late in the day. Among the nurserymen, the order of the honours was Paul, Francis, Mitchell and Lane. Among amateurs the order was Mr. Hudson, Mr. Blake, Mr. Terry, and Mr. Hollingsworth. The Dahlias were a magnificent spectacle, and, as arranged on a long stage, told with immense effect on the eyes of visitors. Mr. Turner took first prize for fifty old sorts, Mr. Keynes second. For twenty-four blooms the order of the honours was Mr. Dodds, Mr. Charles Fellowes, Mr. G. Holmes, Mr. Grant, Mr. Barnard, Mr. Leslie and Mr. Derry. Mr. Keynes stood first in fancy Dahlias. There were some promising Seedling Dahlias, but as a whole, this class was poor. We noted the following as likely to prove of

good service: Rosebud, Ganymede, Hebe, Golden Drop, Mrs. Keynes, Bacchus and Frederic Boshell.

Among the subjects likely to be most useful to amateurs, we note down the following:—Leptodactylon Californicum, shown by Mr. Peed—a finely-grown plant, well trained out, and covered with its pretty phlox-like flowers. This is very apt to get leggy and lose its lower foliage. The bedding geraniums included Magnum Bonum, Cerise Unique, more useful as a pot plant; General Pellissier, in the style of Commander, with very fine truss; Trentham Scarlet, Le Titian, Brilliante, Punch, Kingsbury Pet, better for pot culture; Shrubland, dwarf; Little David, more dwarf, and a shade better colour than Tom Thumb; Scarlet Perfection, and Tom Thumb, four feet across. Among Fuchsias, the following were the best—Duchess of Lancaster, Venus de Medici, Pearl of England, Marquis of Bristol, Inaccessible, Nil Desperandum, General Williams, Prince Albert, Clio, Autocrat, Volcano de Aqua, Snowball, Christabella (yellowish), Charlemagne, Conqueror, Venus, and Wonderful. Balsams were extremely good in some cases, and disgracefully bad in others. Mr. Green, gardener to Sir E. Antrobus, Bart., sent the best lot, and they were, indeed, worthy of a first place. Cockscombs were numerous and fine; Mr. Savage, of Edmonton, had some measuring 18 inches along the comb, 7 or 8 inches wide, and 15 inches high, with very healthy foliage. China Asters were good, but the French tasselled sorts outstripped the German quilled strain in numbers: they are equally beautiful, but the French are novel, and a large number of well-selected blooms was a striking effect. The colours in both classes are admirably clear and decisive. For French Asters, Mr. Sandford, gardener to T. Thomasset, Esq., of Walhamstow, was first; Mr. Monk, of Tottenham, second. Among the miscellaneous plants was a collection of Gladioli, from Mr. Standish, of Bagshot. Mr. Standish is a rival of the Emperor's gardener, in the culture and raising of these showy summer flowers. When the Queen visited the Emperor, she saw thousands of the choicest greenhouse varieties blazing among the shrubberries, and dotting the borders and parterres; and, as a good judge of what may and what may not be done in gardening, the Queen marvelled at this new feature. It was but a trick—the flowers were cut from thousands of plants under glass, and stuck in the ground, just as the folks at Ilford decorated the cemetery with chrysanthemums, on the occasion of the Bishop going to open it. The Bishop was delighted with the profusion of flowers, but a day or two after there was not one to be seen. Mr. Standish's flowers were in three long rows, of about twenty bunches in a row, and they were mostly of a new breed, between psittacinus, the old parrot gladiolus, and oppositiflorus, in securing good strains of which Mr. Standish has laboured for many years, and with as great success as has attended his crossing of azaleas and rhododendrons. As shown on this occasion, we may fairly give Mr. Standish the first place in the three kingdoms, as a breeder of gladioli; the old forms of ramosus and gandavensis, fine as they are, having been distanced immeasurably, and altogether put in the shade. The fruit was in great variety, but there were not many novelties. Of pears, Marie Louise, Chaumontelle, Bon Chretien, Gansel's Bergamot, Beurré Rance, Duchess d'Angouleme, and Catillac, were the leading kinds. Apples were, mostly, of the best old sorts. Mr. Snow's Hamburgh muscat grape, was shown in three ways, as grown and ripened in a peach house, in a vinery, and in a pot, and all the bunches were ripe two months previously; so, to its other good qualities, we may add that it will hang well. Messrs. Lane and Lee had some pretty collections of orchard house trees in pots. The Shanghai peach, in Mr. Lane's lot, is a curious fruit, large, with a deep furrow all round it, and the colour a soft buff.

The National Dahlia Show, which took place at St. James's Hall on the 23rd, in no way disappointed those who had formed bright anticipations. The King of Flowers kept court in befitting dignity and grandeur, and to the display of colours of every shade from pure white, to the nearest approach we have yet

made to black, the variety was endless. The first amongst the exhibitors was Mr. C. Turner, who obtained the first prize in three out of the four "To Growers for Sale," and also in three classes "Open to all Growers," and no doubt would have gained the prizes open to amateurs, if he could have competed in that list. In addition to the dahlias, there were some beautiful specimens of hollyhocks, roses, dried flowers, &c., intermixed with the dahlias at the upper end of the room, which gave an agreeable variety to this portion of the exhibition. There were also some pretty floral devices formed by ingenious combinations of the "blooms" of dahlias, amongst the most prominent of which was an admirably contrived Prince of Wales's plume, which stood upon a royal crown, with golden tassels hanging from each corner, the whole formed of dahlias of various colours.

PROFITABLE GARDENING.

CHAPTER VII.—CULTURE OF THE POTATOE.

The foregoing chapters have been lengthened somewhat in the desire to include all important preliminaries of a general character, and with a view to avoid useless repetition in the directions for the culture of particular crops. Unless you start fair, and with some knowledge of general principles, many mistakes are sure to occur, for though knowledge is most valuable when bought by experience, it is a pity, in these days of books and popular teaching, for any one to labour hard to discover what is already very generally known; and though an observant mind could soon master the leading principles of gardening, by observation and practice only, much time, labour, and money, and many square yards of land might be wasted in arriving at conclusions, which ten minutes study of a reliable book would have settled at once. There is nothing like practice, but if you are a beginner, you have quite enough to learn by practice, without wishing to begin *de novo*, as Cain did when he became first tiller of the ground; no, let us rather begin at the point where others have left off, for what is the value of other people's experience if we do not profit by it, and start in accordance with the honest advice of those who have studied the matter, and try to improve upon *that*. Now, therefore, that we have disposed of many important matters in a practical way, act upon the advice given, and listen to the counsel of one who knows how to grow a potatoe, and shape your culture according to my directions, and if you can improve upon them, do by all means, and I will be the first to acknowledge it, and thank you.

I am not going to write a disquisition on the potatoe disease, and propound a hundred remedies, nor shall I broach anything particularly new or strange as to potatoe culture, but I will show you how to grow them safely, and *all but* defy disease to harm them. The potatoe disease is a "great fact," as the *Times* would say; very well. Now, it doesn't matter one straw whether it is caused by electricity, or bad soil, or the sudden falling of the barometer to 29 degs., or the ravages of fungi, or the *Aphis vastator*, that darling pet of Mr. Alfred Smee. There it is; somebody sees it every year; it comes in autumn, it generally comes after wet weather, and *mark*, the most careless growers suffer the most from its attacks. But if some one now lamenting that he has lost half his crop, should rise up and say he bestowed every care upon it, I should say—"you didn't;"—then would follow a string of questions, from the answers to which, I should no doubt gather that he did bestow every care, not to keep it away, but to invite it; and here let me tell you what every spring I see and sigh over. The ground is dug and manured. In most cases it is dug but one spit deep, and then not heartily. The planting season is supposed to be the end of March, and from thence to the beginning of May. Some time during that period, some sacks of seed

potatoes are brought on the ground, the line is stretched, and the master and man fire away to "dib 'em in." Take up a few and look at them—did you ever see such muck? "Muck, sir, what d'ye mean—that's as good a bit o' seed as I ever seed in my life." Very likely, but to me it appears that "this ere seed" has been stowed away anyhow all the winter, and at last the whole lot has sprouted. They have, moreover, sprouted in the dark, and the sprouts are long white delicate things, like miniature asparagus, or rather like patients just turned out of a hospital—very pale, and not strong enough to stand upright. Seed, indeed! seed of corruption!

Well, with this same seed of corruption, master and man fire away at dibbing, and very regularly they do the work, too; they hit the distances as nicely as Captain Knox hits woodcocks; but, observe, when Captain Knox hits a woodcock, down it comes; he doesn't merely break a leg or a wing, and then leave it to perish; but the fellows can't keep their seed together, and as they drop them into the holes, the thin waxen spray, which they call "shoots from the *h*ies," gets snapped off, and, of course, when the tubers begin to grow, they must make fresh shoots, though the poor things are already as soft as puddings, and as fit to sprout again as any one of those hospital patients would be to run a match of hurdle jumping. Well, in they go, and by and by, they appear above ground, are carefully moulded up, and the master says, "What d'ye think of them taters now sir; look well don't 'em." "Yes," says I, "they look green, —almost as green as you are." (*aside.*) Time speeds, the tops get brown, then black; autumn rains fall, and some time towards the end of September, the master says, "The arm's dead, taters must be nice and ripe now—take 'em up next week." Well, all that week it rains a soaker; next week more rain, and the haulm really does look *dead;* it is, in fact, mouldy; but in goes the fork and out come the potatoes, on the very first fine day that happens, and splendid they look upon my word, except that "there's one here and there diseased." Oh, yes! they are of pretty good size and plenty of them, but they have not been stored away a month, before they begin to smell, and, indeed, they *are* diseased and no mistake! Oh, yes! one half at least have turned black, and are oozing with rank moisture, and every one touched with it soon goes black also, so they are sorted over, the sound ones got rid of quickly, and there ends the potatoe season. Would you think it, my friend will go to work in just the same way the next spring, and, maybe, not expect a similar result? Why, there is *not one* single operation in the whole of his course of culture that is right, and I should not have thought to describe it, did I not see, every season, such a course almost everywhere adopted; and, perhaps, you my friend and reader, may be one of those who practice it. If so, turn not aside from reproof, but read on.

Now, then, how shall we grow potatoes? We must have the ground ready first, and the piece to be planted with them is a nice crumbly fresh loam; it lies a little higher and drier than the rest, and it has not been once swamped all the winter; indeed, it can't be on account of its good position and drainage. That is the reason why we put out cabbage on it last autumn, and as we manured heavily then, the ground is now just as rich as we require it, and not a scrap of manure will be laid on. The cabbage was all cleared off by the first of February, for the sharp frost made them valuable at market; so we killed two birds with one stone—sold the cabbage well, and got the land double digged, and ridged up just in time for a second frost to go through it. Indeed, a good deal of it was ridged up by the middle of January, when we began to remove the cabbages. About the fifteenth of February we shall plant, but not with a dibber, oh no! we don't squash our potatoes into holes for the wet to lodge round them, we knock down the ridges, and dig the land over one good spade deep, and trench in the seed as we go, dropping them into the trenches at regular distances, and covering lightly with the loose powdery stuff, that has had the frost clean through its bones. We leave all smooth

and tidy; and by the first week in May, the little purple sprouts appear along the rows, and, then, for fear the night frosts should nip them off, we bring a few loads of charred rubbish, saved on purpose, from a heap of hedge-clippings, weeds, turf, and other rubbish burnt during the winter. We go along the rows carefully, and shake this loose stuff over the young plants carefully, and as we have not quite enough for the whole piece we very lightly hoe the rest up so as just to cover them with mould and no more. In another fortnight they are through again—but frosts are over, summer is hurrying on, and the potatoes now begin to grow like "winkin," as the boys say.

By the first week in June, the man who "makes toad in the hole," and whose operations we just now described, comes by, and says he, "Your taturs want mouldin' up." "No they don't," says we. "But ain't you going to mould 'em up; its the way everybody else does?" "Well, that's the reason we don't do it—we act contrary to what everybody else does, for the sake of looking wise, and peculiar, and experimental. Philosophers never walk in the ways of the world, else they wouldn't be known as philosophers. Thales didn't when he fell into the ditch, and so we don't intend to mould them up at all."

No; and we don't either, but neither do we intend that weeds shall choke them; so we give the ground a good hoeing over on a bright dry day after a shower; loosening the surface between the roots, destroying every weed, and letting the air have access to the roots; but we don't draw a bit of earth to the stems—in fact we like a few to get greened, through being very close to the daylight, for they make capital seed, and the large ones very seldom grow just on the top of the root. In another fortnight or three weeks, and before the haulm quite meets across the rows, we give them another hoeing, choosing a hot day, and getting the whole piece done long before the sun threatens to melt us; of course not a weed is left amongst them, the sun burns them up before night, and the crop looks clean and orderly, and soon blossoms abundantly. Now we go over them again, and nip off every flower-stem, picking them out from the tops as fast as hens pick up barley, and then we've done with them as far as culture goes; time and the weather do as they like with them, and we trust in Him, who giveth the increase, for the reward of our work.

Well, August comes; the haulm begins to lose its freshness; the weather has been hot and dry for many weeks, and everybody says we shall have glorious weather for harvest. "Another week or two's rain 'll swell up the taturs," says our friend of the dibber. "Yes," say we; and September has hardly set in, before the rain sets in too, and, as our friend says, "This 'll swell up the taturs a bit," "Yes," say we, "ours *are* swelled up—into sacks." "What, took 'em up a'ready? "Oh, yes! all up; nineteen tons to the acre; we expected twenty." "Why, I never saw more than eleven ton in my life, and thought that good. What's the quality?" "Never saw such taturs, upon my word!" There they are, not a diseased tuber among them, all thoroughly ripe, and housed, before the disease has commenced its havoc; for did you ever know disease to prevail much until the heavy autumn rains came on, when, as a rule, there ought not to be a potatoe left in the ground.

Now, if you should fail to gather from the above how potatoes should be grown, I will, in a very few words, restate the matter, and add some other particulars of importance. First, as to sorts. In cold moist soils, the black-skinned, and rough red sorts, thrive best, and are not so liable to be effected by adverse circumstances. For general open ground culture, in dryish districts, the old Regents, Forty Folds (otherwise known as Farmer's Profit, and French Spreader), Shaw's Early Fulham, Early Oxford, and Rilott's Flour Ball, are the best that can be had. It is better to trust to good old sorts, than to risk much with new ones—at the same time, new sorts of potatoes are much wanted, and every one interested in growing this crop, should try some of the new sorts of which good reports

have been made; for, though they may cost a little more at first, if they prove good, seed can be carefully saved, and the variety preserved for more extensive planting. Among the early sorts, the true Ash-leaved Kidney is, perhaps, unsurpassed. It is very prolific, seldom touched with disease, and a first-rate potatoe for the table. The Fluke, and the Lapstone, both first-class kidney sorts, of recent introduction, have proved first-rate; the Fluke, especially, being least subject to disease of any potatoe at present known. Deane's Seedling, a variety introduced by Mr. Spencer, of Bowood, is another admirable sort. All that we have named are early, or second early, and these are the sorts that pay best, because they come off the ground in good time to allow it to be dressed for a winter crop, and, for the same reason, they generally escape the ravages of the disease, which seldom appears until towards autumn, when the nights get cold, the weather damp, and hence the plant, naturally exhausted by its summer growth, has not sufficient vigour to withstand untoward influences. Among late sorts, those known as Scotch cups, are most to be depended on; but late potatoes are fast going out of culture; nor do we need them, seeing how well the Lapstones, Flukes, and Red Ash-leaf Kidney keep till the new crop of the next year is ready to succeed them.

In planting, use none but *whole sets*, of middling size; neither the large potatoes, nor the little "chats." Those of the size of hens' eggs, and from that, to the size of a goose's egg, are the best. At the time of planting, the sets should be firm, and slightly sprouted, the sprouts close, very stiff and strong, and dark-green, or purple; if at all white, and tender, they will rub off, and if rubbed off, the tuber must produce fresh sprouts, and so make the first progress towards ruin. If you are compelled to use large potatoes, cut them in fair sized pieces, with four or five good eyes to each, and in cutting, separate the cuts that contain the crown of each, and plant them apart from the others, for they grow away to haulm very much, and do not ripen at exactly the same time. When they are cut, lay them out, and dust them with quicklime, and when pretty well dried, plant them.

The ground should be in good tilth, not recently manured, but well and deeply dug, and the sets should be trenched in—not inserted with a dibber—that is, laid along in drills, opened by the spade at proper distances, and covered by the spade in the making of the next trench. The soil above, around, and under them, cannot be too loose and friable, and, from the moment the sets are in, not a foot should be set on it, until the time comes for hoeing them over.

The planting of potatoes may be performed any time between the last week in January, and the second week in March, but the earlier the better; and the first week in February may be set down as the best time for all ordinary purposes, even if the grower does not aim at having them specially early. But they may also be planted in October and November, and very good results have followed from autumn planting on dry soils, but on wet soils it is better delayed till March. Potatoes planted as late as June, will frequently produce good crops, but every delay after the first week in March increases the risk, and there is no knowing what disasters may happen before you get them up; therefore, the old adage about the "early bird," is particularly applicable in the planting of potatoes. As to the distances at which they should be planted, the "Cottage Gardener's Dictionary" says, "the early crops twelve inches apart every way, and the main ones eighteen inches," but I prefer and recommend a different method—in fact, two methods. One plan applies to the early sorts, though it may be adopted with any; the other is specially applicable to late ones, or those that are not to be moved till quite ripe. Suppose we are to plant Ash-leaved Kidneys on a piece of ground; I should not make beds, but plant them over the whole piece in rows eighteen inches apart, and the sets eight inches apart in the rows. This would be done from the middle of January to the middle of February, according to the state of the weather. They would be hoed between, and

weeds kept down, but not earthed up on any account, and as soon as any were fit for use as new potatoes, I should begin to dig every other row for the table, leaving the standing rows just three feet asunder, and between these I should manure the ground and fork it over moderately deep, and at once plant it with some kinds of winter greens, or cauliflower, or broccoli, from the seed bed, but I should not wait till a large breadth was cleared, but finish each row at once, as I got it vacant; and the benefit of that would be, that I should be able to draw the largest plants from the seed-bed, which would leave room for the others to strengthen, and give me a succession of heads, instead of a glut all at once. When the time came for taking up the rows that were left standing, the haulm would be just meeting across, and choking the broccoli a bit; but I should have all the potatoes up before any harm was done, and when they were cleared off, there would be the rows of green stuff three feet apart—not an inch too much for them to do well, as they would show before October, by shaking hands across the intervening spaces. By the other plan, I should plant the strong growing sorts for the main crop, three feet apart, and eight inches between the sets; hoe and weed well, and take up when quite ripe. If planted early, they would come off in time for turnips or winter greens, and so keep the ground briskly at work, for if well done by, it derives no benefit from idleness.

To obtain early crops of potatoes, large sets are the best. In these, only two or three eyes should be allowed to remain, and the sets should be placed with their leading buds upwards. The sets should be prepared previous to planting, by placing them in a layer, in a warm room exposed to the light, and with a little straw shaken over them; and as soon as shoots appear, remove the covering without breaking the shoots, and after a few days' exposure to the light, when the shoots become green and hearty, plant them in shallow drills in light rich soil, and cover with litter to protect them from frost. During fine days, let the litter be withdrawn, and returned again before night, until all danger of frost is past, then hoe between them, and give liquid manure, if the weather is very dry, and the crop will be not only early, but heavy and fine.

For several seasons past, I have grown early Ash-leaved Kidneys as follows:—The ground is trenched and laid up in a slope to the south. At the latter end of January, the trenches or drills are made a foot deep, and half decayed dung thrown in along the drills to a depth of six inches, and quite hot from the heap. An inch or two of mould is then drawn over the dung, and the sprouted sets very tenderly laid in, and just covered with two inches of earth. A few days after, a little more earth is drawn over them, and so on till the middle of April, when the shoots begin to push through. They are now dressed over with charred rubbish saved for the purpose, consisting of wood-ashes, small fragments of charcoal, burnt earth, &c., the produce of hedge-cuttings and scarifyings of the soil. This is slightly heaped over the line of each drill, so as just to keep the sprouts from the daylight, and as they push through again, a little litter is used till the second week in May, when the litter is withdrawn, the plants hoed between, and then left to grow as they please. They do not, on the whole, get more than five or six inches of covering, and the air is admitted freely to their roots by means of the hoe, and the result is, that they come in very early and very good, and the ground, when dug over, is in prime condition for a crop requiring generous well worked stuff to grow in.

A few more remarks, and we shall have done with potatoes. The practice of mowing down the tops, is very commonly practiced, but is injurious in practice and ridiculous in theory, and as a check to the disease, quite unavailing; indeed, the more likely to hasten decay, by the exposure of the flowing sap to the atmosphere, and preventing the tubers from getting rid of watery matter through the help of the foliage. In taking up, have them sorted at once, and use the small first, after selecting what you want for seed, and store none but the largest,

and best ripened of them. As a rule, never manure at the time of planting, and plant as you dig, and for the main crops, six inches deep; but for early crops, that you intend to nurse a little, four inches deep. Take up the crop as soon as the leaves turn yellow, in July or August, and always give the preference to early over late sorts. If not earthed up, potatoes are more productive, and ripen ten days earlier than those treated in the customary way.

HYACINTHS IN POTS AND GLASSES.

For the growth of hyacinths in pots, prepare one half decomposed friable turfy loam, with the remainder equal parts of well rotted manure, leaf-mould, and river-sand, well incorporated together, this should, when so prepared, be used in a tolerably dry state (free from adhesiveness) so as to admit of a firm pressure, without injury. The most favourable season for planting is *September*, and onwards. The size of pots is regulated by the space or convenience for placing them; where limited, and a rich massive effect is wished for, those of six or eight inches in diameter are recommended, in which three or four bulbs may be placed, but where more convenience is had, a succession of single or double bulbs in smaller pots may be admitted—two bulbs in each is very effective, and generally preferred; the colours of such may be regulated according to taste. In potting, each bulb should remain two-thirds above the surface of the soil, and the base of each bulb should rest upon a stratum of clean river-sand at about three quarters of an inch lower than the rim of each pot, to admit of a judiciously regulated amount of water during the season of bloom. After potting, place them where intended to remain, upon a dry surface of ashes or sharp gravel, in the rotation of their intended periods of bloom (each later potting plunged beyond the previous ones) and thus arranged, water the whole well, to imbed the bulbs firmly within the soil, allowing them to remain until the bulbs and surfaces are again dry (for one or two days); then cover the whole over to the depth of six or eight inches with half dried tan or pure leaf-mould, for six or eight weeks, in which position the preparatory root-growth is made, necessary to a vigorous development of their flower-scapes. After the period adverted to, less or more, the first potted bulbs may be taken up, the soil and sediment carefully brushed off, and removed to a gentle hot-bed, or a warm genial greenhouse or forcing-pit, where, by the aid of a slight root-temperature, the bloom will progressively expand, care being taken to screen the leaf-growth made in darkness for a few days after being disimbedded. When an unusually warm spring requires that the covering of tan or soil should be removed from the general stock, the various batches or pottings may be removed to cool pits or frames, east or north aspect (air being admitted early in fine weather, and closed early) until required for the forcing-house. A short difference of a week or fortnight between the periods of potting, will produce a corresponding difference in the periods of bloom.

For culture in glasses, the bulbs should be so placed that only the base of each touch the water, the supply being given to that effect; they should then be placed within a side recess or upon a shelf, in a cool place, screened from the light, until the roots are considerably developed, before being exposed to the action of sunlight in the drawing-room window, or vase. All adventitious or impure matter secreted from the water should be removed by occasionally replenishing the glasses with pure water; no injury is sustained by the operation. After the removal of the bulbs to their position for flowering, they should not be removed from it, except in the case of winter-bloomed bulbs for the purpose of protection from frost, or chilling atmosphere by night. Rain or soft water is most conducive to their vigour. Many of the fine single-flowered varieties of hyacinths are more effective than the double ones, and, as a general rule, the former succeed better than the latter in glasses.—*Messrs. Henderson and Son's Catalogue.*

NOTES ON NEW PLANTS.

ATHYRIUM FILIX-FEMINA, *var.* CORYMBIFERUM.

THE lovely Lady-fern, the most graceful and delicate of our native Filices, is in itself one of the most beautiful objects on which a fern-grower can lavish his care, and as it thrives to admiration in any good turfy or loamy soil in a wet and shady situation, it is one that can be used freely in the hardy fernery. But the varieties of ferns are those which attract most attention, especially for pot-culture, and of the Lady-fern, we have seven very distinct varieties, all of them curious and beautiful, and of these *multifidum* and *crispum* are, perhaps, the most popular; the latter is a telling exhibition fern, very slender and delicate, with the points of the fronds densely tufted and crisped, so as to bear a close resemblance to parsley. The variety *corymbiferum*, is altogether new and peculiar, and what is especially interesting, it is fertile, for we have three of its prettily tufted fronds, well covered with sori, of a bright reddish brown tint, which, with the brown tinge of the caudex, gives a rich warm hue to the under side of the fronds, which has a pleasing effect in contrast to the delicate green of the upper sides. The tufted growth of *corymbiferum* is after the fashion of that in *multifidum*, not so full, but more distinct; or, rather, it is like *crispum*, with a more upright habit and less delicacy of structure.

This is certainly one of the most beautiful hard fern varieties we have, and as it will do well in a suitable position out of doors, we recommend our fern-loving readers to become at once possessed of it. For greenhouse culture and exhibition, it will prove a valuable acquisition. Mr. E. Cooling, of Mile Ash Nurseries, Derby, has the stock, and is now sending out strong plants. [Price 7s. 6d. each.]

NEPHRODIUM MOLLE, *var.* CORYMBIFERUM.

This is a fast growing, profusely crested greenhouse fern, bold, and showy in its massive corymbs and vivid green colour. The crests are very large and dense, and often as broad as the widest part of the fronds, and they are of firm substance. It is an evergreen, and attains three feet in heigth; hence, for specimen culture and exhibition and decorative purposes, this is the most acceptable fern novelty of the season, and deserves a place in every collection. The fronds, one of them branching into six main divisions, and most densely crested at the points. As *Nephrodium molle* is a thoroughly greenhouse plant, this variety will doubtless prove equally hardy, but in the stove it may be expected to attain to still finer dimensions. Of its robustness we are quite satisfied, and heartily recommend it accordingly, but no description or engraving can convey an adequate idea of its distinct and peculiar beauty. Mr. Sim, of Foot's Cray,

figure is from a plant which was turned out in a rockery under glass in July last, which has, since then, thrown up three splendid Kent, possesses the entire stock, and is now sending out plants. [Price 15s. each.]

PRESERVATION OF BEDDING-PLANTS.

Pity a poor florist, who, without any Waltonian case, or means of "starting into growth," in February or March; without any greenhouse, or cold-pit, or frame of any kind, except a few hand-glasses, and whose artificial heat is limited to an April hot-bed, arched over for annuals, wishes, nevertheless, to bed out, in as good condition as possible, a few horseshoe and other geraniums, calceolarias, and verbenas, propagated from his own stock of this year, which are to be kept over the winter, in the windows of spare rooms.

I take it for granted, that if I, and others similarly situated, had geraniums kept hung by the heels, in bunches, as those Mr. Shirley Hibberd made so much of, by putting them round the sides of his Waltonian case, that we could do nothing with them, except plant out the old plants themselves,

some time or another in spring, when, and in what way, with reference to the contrivance for protection to be hereafter mentioned, I should be glad to know.

I have a couple of dozen pots of geranium cuttings, struck as recommended in your July number, round the edge of a 5-inch pot, also some strong growing verbenas and calceolarias, both crimson, semi-herbaceous, and shrubby yellows; and it appears to me, that all I can aspire to, is to get them out of their pot-bound quarters as early as possible, so as to get good plants by the middle of May, without any hope of propagating from them, till summer comes again; and, wishing for your opinion thereon, I will mention to you how I intend to set about it. At the end of March I shall make up a light border, about three feet wide, under a south wall, and safe from wind, with hooks in the wall at the back, and pots and rails in front, as directed by Mr. Shirley Hibberd, with the addition of turf walls *at the ends*, and oiled calico to hook over, instead of a net. Will you, therefore, kindly tell me how soon *each* of the following plants might be safely entrusted to such out-door quarters, protected from cold rain by the oiled calico, and a matting thrown over in addition on frosty nights: Scarlet and hybrid geraniums, pelargoniums, the above-mentioned calceolarias, and verbenas, such as melindres, purple king, lilac, pink, and white, all of strong growth.

All, except the verbenas, will be kept, during the winter, in rooms without fire, unless in very severe frost.

By the way, I should like to know whether verbena Melindres is the Defiance verbena spoken of by Mr. Shirley Hibberd, as being so hardy.

In order to economise space, and avoid crowding, will you say, how close cuttings of calceolarias might be planted in boxes, to be kept there till transferred to the above-mentioned protection, and also, what space should be allowed to each kind of plant, when transferred there, to stand till middle of May.

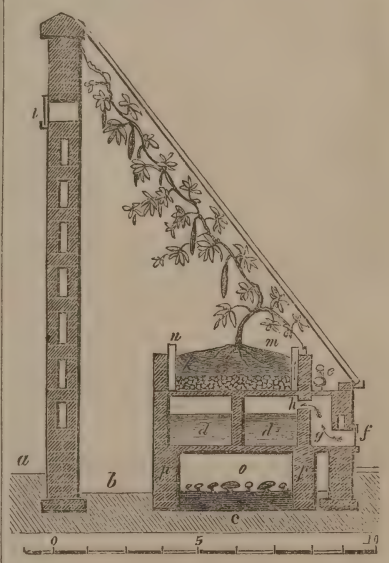
I have found from experience, that neither calceolarias nor verbenas do as well in the house, over the winter, when potted off in small pots, as when they are kept together in large pans or boxes, the latter being best. In a greenhouse, it may, doubtless be different. A.B.

[The case here put, is the case of thousands, this, and every season. Be it known, then, to all whom it may concern, that *everywhere* bedding plants are kept on make-shift principles—in great nurseries, in dukes gardens, nay, even in the garden of her Majesty the Queen. There is not a garden in this kingdom, that has sufficient accommodation to treat the whole stock of bedders to true greenhouse culture all the winter, and the contrivances resorted to by the humble amateur, are also resorted to by those who have at command acres of glass, and miles of hot-water pipes. Take heart, then, and remember it is not so much the *means* as the *manner* of using them, that will prove the secret of success or failure. A. B. cannot do better than keep the whole stock of cuttings in pots or boxes, and the latter are the best. If his calceolarias are already well rooted, they will be almost too strong to do well; he might strike another lot now, each an inch-and-a-half or two inches long, and no more, and dib them in two inches apart all over the surface, and by the end of November they will be quite as strong as need be. Verbenas and calceolarias are more impatient of dryness than geraniums, hence must always be kept moist, growing slowly in full light. Of geraniums, the scarlets will bear more cold and more drought than fancy pelargoniums, which are difficult to keep without the help of heat. If you can keep all safe till the middle of March, all may then go under the calico lights with safety; but instead of keeping scarlet geraniums to plant out, pot them, in the middle of March, in the smallest pots you can get them into. Use leaf mould, loam, and plenty of sand, and one third broken oyster shells, and give only just enough water to moisten the soil, and keep as dry as possible till they begin to start. When they have broken well, shift as soon as the roots begin to push through the drainage; and when they have got to work in the larger pots, prune them close back to good shoots, and strike the best of the prunings round the sides of pots, in a warm room. By this plan they will bloom sooner than if kept dry till planting out time; indeed, we advise the starting in pots of plants so kept, for by that method, six weeks' growth is saved. The calceolarias being moderately hardy, may be potted at the same time, but it would be better to keep verbenas in their boxes till the middle of April, and then pot them singly into thumbs, or small sixties, so as to get them pretty strong to plant out at the end of May. Geraniums and calceolarias are the only things that need be struck in autumn, by those whose facilities for culture are few, because verbenas, petunias, and the majority of soft-wooded bedders, bloom almost as early, if struck in March or April, in a hot-bed, and thus reducing the necessity for preserving, to a few stock plants of each sort. Melindres is quite distinct from Defiance verbena; the latter is the best of the old scarlets, for bedding.]

TANK-HEATING AND EARLY FORCING.

It is often a matter of some difficulty for the proprietor of a small establishment, to hit upon the right sort of house in which to secure a succession of early forced fruit and vegetables, and, at the same time, make room for some select stove and greenhouse plants; but, in large places, the difficulty does not so often occur, because structures are adapted to each of the several kinds of work, and, of course, with greater convenience, safety, and certainty. When a man says, I want cucumbers at Christmas, and they must be grown with orchids, early greenhouse flowers, and stove plants, one is prepared to answer in a way to dispirit him, and, instead of showing him how he is most likely to accomplish his object, use very strong arguments to show that it cannot be done at all. Now, plants of all kinds possess a good deal of adaptability, and the more so, if they are prepared for it by the whole course of culture to which they are submitted; and, in the house I shall now describe, this adaptability can be admirably turned to account, provided justice is done to all, as far as giving sufficient room, air, and light, are concerned. Many years since, I had a house erected for the culture of early cucumbers. Till then, we had always grown them in pits, but the bother of lining, the frequent accidents that arose through failure of heat, and the long time that sometimes elapsed before the heat could be got up again, during which the plants were pretty sure to suffer, and the filth, the labour, and the anxiety, determined me to erect a house for the purpose, and an angle of 43 degs. was determined on, with a set of flues, and a furnace, for heat. Though not a dead failure, the plan was not a decided success, for we were still obliged to use fermenting materials to get sufficient bottom heat, and, at last, when an accident occurred to a portion of the flue near the furnace, by which the smoke got into the house, and played terrible havoc, before the escape was detected, the whole house was remodelled, the flues removed, and hot-water pipes laid in their stead, with a tank instead of a dung-pit, for bottom heat. This was not long accomplished, when it was found that the house would suit for all kinds of early work, the labour was reduced to a minimum, the temperature could be regulated with the greatest ease and certainty, and the place could be kept as clean and tidy as a lady's boudoir.

The house is built against the end of a shed, and is twelve feet wide, and twenty-three feet long. At *a* is the ground level, below which the pathway *b*, is excavated a foot and a half, and, at *c*, the excavation is a half-foot deeper, to form a bed under the tank. The tank *d d*, is fifteen feet long, and is supplied by flow and return pipes, with additional pipes *e*, by a branch from the flow, to supply atmospheric heat. To keep up a circulation of air, as well as of heat, there is an aperture in the front wall *f*, which can be opened, or closed, at pleasure. When opened, air is admitted under the pipes *e*, into a chamber *g*, from whence it passes through an opening *h*, into the tank, and thus gets moistened, as well as warmed, before it enters the house, through the tubes *n*, which are placed at intervals along the casing of the tank, and all of which can be closed, when necessary.



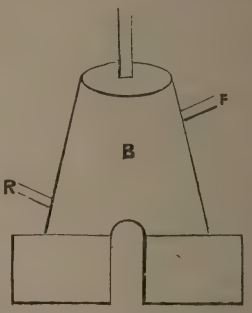
After circulating round the house, the air escapes through the back wall, at *i*, and at this opening, as well as at *f*, the ventilation is regulated by a sliding shutter outside, the one in the back wall being also worked from within, by means of a cord, over a pulley.

The tank is of slate, encased in brickwork, with a partition down the middle, to regulate the circulation of the water. When used for cucumbers and melons, a bed is made up at *m*, a good depth of loose rubble being first laid down, for drainage, and the soil is added as required by the plants, for if the bed were filled at once, much of it would get soured before the roots had worked into it. Under the tank is an open space for a bed *o*, and

the heat, communicated to this, from the bottom of the tank, and the brick piers *p*, suffices admirably for forcing mushrooms, rhubarb, asparagus, &c., but as the latter does best in light, sufficiently to colour the shoots, we have not often grown it there—for mushrooms it is admirable. From the front of the tank, to the back wall, about a foot from the glass, is a wire trellis, to which the plants are trained. When the trellisses are not all in use, we turn to use the back wall for greenhouse plants, on moveable shelves, and the return pipe, shown in the section, runs along the lower part of the wall, and gives sufficient heat to force geraniums, camellias, rhododendrons, cytisuses &c., and beyond the tank, we have eight

feet of space, which we call the "cool end," and which is heated only by the return pipe, which leaves the tank, and passes round a stage, before it takes a direct return along the back wall, to the boiler. This cool end is also used for greenhouse plants.

Referring to the outline sketches, it will be seen that the heating apparatus is in the shed where the furnace was originally placed for the flue. We use now only Rogers's boiler, and one mistake we made, was, to carry the flue straight up the wall, instead of taking it round the house, for we might have heated the back wall with it, instead of parting with the fire heat, as we do now. The boiler, *b*, is in the centre, and the flow pipe leaves it near the top, and the return pipe enters near the bottom. The flow has two connections with the tank, one at the end nearest the boiler, and one at the end most remote; either of these can be closed, by means of a stop-cock, and if the fire has been allowed to get low, or if severe weather renders it necessary to get a little extra heat quickly, we generally close one of the taps for a short time, until a brisk circulation is established. There is an extra length of pipe attached to the flow side, to carry heat beyond the tank, into the cool end, but this we seldom use, the return pipe being almost always sufficient. The movement of the water from the pipe, into the tank T, is indicated by arrows, and the pipes are distinguished by the letters—F the flow, and R the return. By a little variation of these particulars, such a house as this might be used as an early vinery and peach house; the back wall and the trellis would afford good spaces for training, and instead of planting in the bed over the tank, it would be necessary to make a border at the back, and use the tank bed either for plunging



stove plants in pots, or planting them out in it. But to do this, it would be better, in the first instance, to place the tank in the centre, and have it narrower, so as to allow of a wall and a border, both front and back, and give the house a width of fourteen feet. Then peaches, apricots, vines, stove and greenhouse plants, and orchids might be grown together, according to the length of the house; if short in proportion to the width, the collection would have to be limited, but as it might be of almost any length, from twenty to fifty or sixty feet, such a structure and method of heating would combine more advantages, and be more free of inconveniences, than any kind of house, equally well suited for early work, and the increase of its dimensions would not be attended with a proportionate increase of expense in the first instance; indeed, a good sized house costs but little more than a small one, where, in any case, there must be an efficient heating system, and the usual facilities for successful forcing. One objec-

tion may, in these days, be urged against it, that the roof is of too sharp a pitch. I confess that this is according to the rules that were in vogue when I was a boy, and that at the present day, good forcing is done in very flat-roofed houses. But this has its advantages, and they are not trivial ones. It catches the sun's rays more directly than a flat roof, and that is an important point where healthy and quick growth is to be promoted in the dark days of December, January, and February, and, besides this, look at the length of rafter and trellis we get for training. For peaches, figs, grapes, and cucumbers, this sort of roof is preferable to any, but greenhouse plants, even if not too much shaded, are apt to be drawn by it, and grow out of shape; this, however, I consider but a small evil, for we only put in plants that are to flower quickly, and which have been got strong and bushy by previous good management, and as they go to the showhouse or elsewhere, as soon as they are in their prime, their general contour is but little the worse for it. Next month I will describe my method of growing cucumbers in such a house, and I think I shall be able to afford some useful hints to those, who, like myself, regard forcing as one of the choicest occupations in the whole range of horticulture, and especially to such as are not yet satisfied with their skill in cucumber culture.

AN OLD GARDENER.

SELECTION OF HYACINTHS, FOR CULTURE IN WATER OR MOSS.

BY MESSRS. CUTBUSH AND SON, OF THE HIGHGATE NURSERIES.

DOUBLE RED. — Bouquet Royal, large rosy bells. Bouquet Tendre, fine deep red, one of the best reds. Comtesse de la Coste, very fine dark rose, with good spike. Duke of Wellington, very fine pale rose, the bells large and beautifully arranged, often producing two spikes. Grootvoorst, pale rose, good spike, with nicely shaped bells, first size. Waterloo, fine pink, changing to deep red, often producing two spikes; one of the best reds, and generally cultivated; first size.

DOUBLE WHITE. — Anna Maria, fine French white, with pink eye, good formed bells and spike. Francina, very fine blush, good spike, small bells; early. La Deese, pure white, finely-shaped bells, but thin spike. La Vestale, lily white, small bells and spike. Prince of Waterloo, very fine pure white, large bells and moderate spike.

DOUBLE BLUE.—Belle Mode, fine porcelain blue, large bells and spike. Bloksberg, fine bright and marbled blue, very large bells and spike. Grande Vedette, fine porcelain blue, large bells and spike. Keizer Alexander, very fine dark blue, magnificent bells and large spike. King of the Netherlands, pale blue, good bells, moderate spike. Laurens Koster, beautiful bright indigo, large bells, and first-rate form, with an immense spike. Madame Marmont, fine azure blue, very large bells, and moderate spike; novel colour. Prince Frederick, fine porcelain blue, large bells and spike. Prins van Saxe Weimar, very fine dark blue, good bells, an extra long spike.

DOUBLE YELLOW. — Bouquet d'Orange, fine citron yellow, small bells, moderate spike.

SINGLE RED. — Circe, carmine, shaded with salmon, beautifully marbled with pink, large bells, and immense spike. Diebitz Sabalskansy, bright red, moderate bells, and good spike. Duke of Wellington, fine rose, large bells and spike. La Joyeuse, deep pink, fine large bells, and good spike; early. L'Amie du Cœur, deep pink, small bells, moderate spike. Madame Hodgson, pale pink, good bells, and finely-formed spike. Monsieur Feasch, fine pale pink, striped crimson, changing to almost scarlet, large bells, and fine spike. Mrs. Beecher Stowe, very fine pink-striped red, large bells, and magnificent spike. Norma, a magnificent waxy pink, immense bells and spike. Robert Steiger (Maria Catherina), fine deep crimson, large bells, and immense spike.

SINGLE WHITE.—Dolly Varden, beautiful blush, large waxy bells, and fine spike. Grand Vainquer, pure white, fine bells and spike. Grande Blanche Imperiale, fine blush, moderate bells, and large spike, Grandeur à Merveille, very fine pale blush, good bells, and immense spike. La Balaine, very deep blush, good bells and spike. Mont Blanc, beautiful clear white, large bells, immense spike. Victoria Regina, very fine pure white, large waxy bells, and fine spike. Voltaire, very beautiful blush, large bells, and fine spike.

SINGLE BLUE.—Baron Van Tuyll, fine dark porcelain, large bells, extra fine spike. Charles Dickens, fine pale blue, large bells, very fine spike. Grand Lilas, beautiful delicate azure blue, large bells, immense spike. Grande Vedette, fine pale blue, immense bells, and moderate spike. Nimrod, beautiful pale blue, large bells and spike. Orandates, very fine porcelain blue, large bells, and very fine spike. Porcelain Sceptre, very fine pale blue, moderate bells, very fine spike.

MUSHROOM CULTURE SIMPLIFIED.

A PIECE of spawn which appears in filaments or fibres, is no longer applicable to a mushroom bed; it may produce a mushroom in itself, but can serve no other purpose. The spawn that is to be inserted in a bed, and to receive its development there, must not be gone so far; but should only have the appearance of indistinct white mould.

The spawn being in right condition, the beds are next to be considered. I have generally made them in a shed, against the wall, sloping from the wall, downwards, about two feet high at the back, and perhaps a little less than one foot in front. The materials for the bed are horse-dung mixed with litter, such as is commonly used for hot-beds; dry leaves may be added, or the greater part, if not the entire bed, may consist of leaves. I do not employ the dung fresh, but after it has lain on a dung-hill, and has been frequently turned and well worked. There must be no rank heat in it for the spawn would be killed by an excess of warmth. The temperature of the bed should be between 50 and 60 degs. From 52 degs. to 55 degs. may be quite sufficient. When the temperature is reduced to a proper state, the spawn is inserted. If the bed happens to be dry, I put a layer of moist manure, of the same quality from the dung-hill, upon the spawn; or if, on the other hand, the bed be too moist, I put a layer of dryer manure over it these layers I make about two inches thick. The mode of spawning is the usual one; namely, the bricks are broken into small pieces, which are inserted at three or four inches distance from one another. The beds are earthed over about one inch and a half thick, and ultimately covered with hay of different thickness, according to the state of the season. I have never made use of fire-heat; but always succeeded in regulating the temperature of my beds by means of covering. I scarcely ever have occasion to water the beds, owing to the materials of which they are composed.

The produce from beds of this description has been ample, and the quality of the mushrooms excellent, rich, and well-flavoured; they are of great size and thickness, when suffered to grow; but medium sized ones are best. They yield abundance of juice when dressed, or prepared for catchup. There is no doubt that their quality depends upon the manner in which they are nourished; if they are meagerly fed, their flavour and substance will be poor in proportion. Thence artificial mushrooms are, generally, richer and higher flavoured than those which grow naturally; and, again, among the artificial produce, those will surpass which are reared on large and deep beds.—*Turner's Florist and Fruitist.*

DO ANTS PREY UPON APHIDES?—ARE HEDGEHOGS USEFUL IN GARDENS?

No; but casual observers are led to believe so from seeing them busily engaged, running up and down plants and trees, which are infested with aphides. Now, if those who hold the above opinion, were to look a little closer into the matter, they would see that ants do not devour aphides, but are lured by the honey-dew, or sweet juices which they emit, and of which they are extremely fond; and, indeed, some of them seem to entirely subsist on that kind of food. This accounts for the number of ants seen running about on trees and bushes, and any plant on which the aphides have taken up their abode. And the most knowing of those industrious little fellows do not wait for the aphides to emit the sweet juices, but actually suck it from them at pleasure, hence they are termed by Kirby and Spence, the "ants milch cattle." Some ants, which do not roam far from their nest, actually carry off a dark species of aphis to their nests, and keep them there for milking, the aphides finding nourishment from the roots of grasses, &c.

Various recipes have been given, experiments tried, and stratagems resorted to for the purpose of exterminating the numerous tribes of insects troublesome to the gardener; and I think, however tender a person's feelings may be on this point, he must admit that, when any of the quadruped, or insect tribe, injurious to man, overstep their bounds, take up their abode in our houses, congregate in thousands in our conservatories, together with a hundred and one other annoyances, they become a nuisance, and, as such, must be cleared away. But, for man to molest, and to entirely destroy any of God's creatures in their own haunts and homes, is both cruel and sinful, and shews at once the bad heart of him, whom the good Cowper would not call his "friend."

However, I do not know that ants injure vegetation by running up and down the

stems of leaves and plants; but, if they were to prey upon the green-fly (as wasps do upon flies and bees) why, they would do good service, and would be welcome guests; for aphides are, without exception, the greatest pests of the greenhouse. Slugs can be got rid of more easily, as their numbers are never great in a house that is well looked after—their slimy track, and nibbling propensities cannot long escape the eye of the gardener. Woodlice, again, are very destructive creatures, they will devour a whole pot of young seedlings in a night; and, he who, having had a batch of young plants thus destroyed, in which great hopes and expectations were centred, would have good grounds for waging a war of extermination against the delinquents. And, to accomplish his purpose, he could not do better than keep a few hungry toads in his greenhouse; and, moreover, that would be the most humane way of getting rid of his pests. Slugs and woodlice are the natural food of the toad, and, therefore, in allowing them to be dealt with by that useful, but illused little fellow, the balance of creation would not be disturbed.

Hedgehogs are recommended to be kept in greenhouses for the same purpose, but I believe, without a good reason. Those who recommend this prickly gentleman, cannot be aware of his habit, and mode of life. If he was content with eating slugs and woodlice, it would be very well, but such is not the case. He can make a dinner of vegetables as well as woodlice, and, therefore, in resorting to his aid to rid your house of slugs, &c., you will find the remedy more annoying than the complaint, so much so, that I question if any one will try the experiment a second time. I tried it once; but never again will I put a hedgehog in my greenhouse or garden either. And, perhaps, I may as well give a sketch of his doings, as a warning to others.—One evening, as I was taking a walk, Rose (a favourite dog), brought me a hedgehog; I saved his life, carried him home, and put him in the greenhouse. Next morning, I went up to have a peep at him. The first thing I saw, was a beautiful young fuchsia (Duchess of Lancaster) lying on the ground. I immediately raised her highness as gently as possible, but was grieved to find that the injuries she had sustained, were of so serious a nature as to be past recovery. In fact, she had been thrown down and nearly devoured by the hedgehog. On looking round on the stage (a flat one) there I saw pots strewed about in all directions, the plants broken and nibbled to pieces; some two or three dozen potted balsams, that I raised and nursed with care, were bitten in two; and many other things, totally ruined. I looked about for the despoiler of my pets, but could not find him. I searched again and again with the same result. At length I carried up Rose, and she soon told me where the black rascal was hid. I could never have thought it. In a space three inches wide, between the horizontal flue and the front brickwork of the house, my gentleman had taken up his "snuggery." To pull him out was impossible, and Rose could not reach him. I tried to poke him out with an iron rod, but he was immoveable; so I thought the better plan would be to let him come out himself. But the idea of his remaining there another night, with the chance of feeding again upon my nurslings would be monstrous, so I was determined to watch for him, even if I lost a night's sleep. No landed proprietor was ever more anxious to eject a bad tenant, than I was to get rid of my troublesome one. However, after patiently awaiting till a late hour, I heard some pots go to rack on the stage; and on running in I discovered Mr. Hedgehog to be the cause of the upset. "Hallo, old fellow—you're at it again, are you?" I exclaimed. "How did you get up on the stage, eh?" As he made no answer to my queries, I popped him into a barrel, and shut him up. Next day, I gave him in charge of a baker, with whom he became quite tame and earnt his lodging by devouring cockroaches. But he couldn't be content with his floury demesne, but must needs find his way to a neighbour's garden, and nibble the hearts out of the cabbages, for which, that neighbour, taking him for a rabbit, shot him dead in the act of destruction. So much for aphides and hedgehogs as friends or enemies to the garden.

Wells. M. Westcott.

OCTOBER WORK IN THE GARDEN AND GREENHOUSE.

The past month has been favourable to all the occupations of the season, and there is no excuse for any complaints against the weather by those who have not yet secured sufficient bedding-stock, or whose fruit trees have not thoroughly ripened their wood. Such a bright and warm September prepares everything for safely enduring the rigours of winter, and, from this time till frosts come, it is the gardener's duty to take advantage of

every ray of sunshine, so as to promote the ripening of all kinds of stock, and to keep greenhouse plants exposed to the air as long as it is safe to do so. It is not the cold, but the heavy rains which do most injury to tender plants at this season; hence, many things, besides true greenhouse plants, are all the better for the protection of a frame or cold pit, where they can have shelter, but plenty of air and light. Garden crops are generally good this year; potatoes are, here and there, spoken of as diseased, yet there has been no excess of rain or fog to cause it; indeed, we rarely have had weather so well suited, both to the ripening of the tubers and the harvesting of the crop, as during the past month; and those who have not yet taken up their crops, should do so before the heavy rains set in. This is a busy month; nearly every kind of winter work may be commenced, and, indeed, completed, if weather permits. Roses may be moved at once, in full leaf, and, if left unpruned, will soon get root, and be well established before spring. Deciduous trees and hardy fruits may be planted towards the end of the month, for there is no need to wait till every leaf has fallen. Get them into their places while the ground is warm, and a season is saved, and the tree will always be the stronger for it, for the fate of many a tree is sealed in its original planting. Earthwork, too, may now be commenced, and drains laid, turf stacked for forming composts, and deep soiling practised on ground suited to such treatment, so as to have it in ridges in good time to be acted on by frost. The whole of the arrangements for next season should be determined from this time, and, in taking up bedders and decorative plants from the borders, their good and bad qualities should all be noted down, so that things that have proved inferior, or that evidently do not suit the soil or situation, may be substituted next season for subjects of higher merit. Every soil has its peculiarities, and one great secret of success, especially in ornamental gardening, is to select varieties that have been proved to succeed in the place; for even a Tom Thumb geranium, or a Rugosa calceolaria, common as they are, do well or ill, according to the effects of soil or climate upon them. Pits, frames, and houses, ought now to be clean and free from the smell of paint and putty. It any repairs have been neglected, see to them at once, and get all sweet and dry without a day's delay; for when we get to October, we are never sure, for a week together, but that our appliances and manual skill may have a sudden trial. Usually, we have mild weather till Christmas, and there seems every probability that this season will be no exception; but the prudent gardener works by anticipation, and is always ready for emergencies.

Kitchen Garden.—Trench over first the ground intended for root crops next season, and choose for potatoes, carrots, parsnips, and beet, plots that have been well manured this year. If the soil allows of deep digging, fork over the second spit, and if it is of a friable and fertile nature, bring it to the top, so as to turn the whole soil over eighteen inches, or two feet deep. Plant out the main crop of early York, and other cabbage, for cutting in April, May, and June next; put out more collards for early spring use, if any are left in the seed bed, and if the plants are clubbed, cut off the callosities, and dip the roots into a puddle of lime and soot. Cauliflower plants to be transplanted into frames, or under hand-glasses. In cold and wet districts, it is best to pot them to winter them in frames, to be turned out into beds of rich soil in spring. Take up carrots, potatoes, beets, and salsafy, and store in sand, but leave parsnips in the ground, to be taken up as wanted, unless they are in the way of other operations, in which case, they may be taken up and stored. Broccolis and cabbages that are forward, should be laid with their heads to the north, and their stems well moulded over; this checks them slightly, and enables them the better to bear frost. In undrained soils, it is a good plan to cut a few channels among standing crops, to enable the heavy rains to run off more quickly to an outlet, as dryness of the ground very much lessens the effects of frost. Fork over asparagus beds, and clear away all litter; remove the stems with a knife, and dress the crowns with manure, and a little fresh mould over all. Earth up celery; hoe the ground between crops, and keep the borders clean, so as to allow a free circulation of air among the plants.

Fruit Garden.—Towards the end of the month, gooseberries, currants, and raspberries may be moved. New plantations

should be made on ground deeply trenched and manured; gooseberries and raspberries need a richer soil than currants; and black currants and raspberries will thrive in more marshy ground than any other of the bush fruits. In all removals, whether of trees, bushes, or herbaceous plants, the roots should be examined, and all diseased, or mouldy portions, cut clean away.

Flower Garden.—Chrysanthemums are very forward this season; the major part of our own collection are now in fine bloom, and in the highest health and vigour. A correspondent writes to suggest, that the societies should alter the dates of their shows this season, but there is no need for this; the plants will not be past their beauty in the first week of November, where they have been properly stopped, and kept abundantly watered, all the season. Chrysanthemums in the borders should be looked over without delay, to see that they are sufficiently staked, for heavy rains and winds play terrible havoc with them, when they are not well supported, owing to the profusion and weight of their blooms. Where they are required to take the places of bedding-plants, they should be got to their places at once, and be lifted with good balls, and well watered in. Choice and delicate sorts are best flowered in pots, under glass, and, for this purpose, they ought to have been potted two or three months ago, and shifted as required, and trained out, so as to give effect to their beauty when in bloom. The Bulbs to be planted this month are hyacinths, crocuses, scillas, crown imperials, liliums, irises, narcissus, jonquils, daffodils, and early tulips. Next month is soon enough for late tulips, and anemones and ranunculuses, are best kept out of the ground till February, except in places where autumn planting has been proved to answer for them, in which case it is preferable. Herbaceous spring flowering plants may also be got into the borders, to bloom at the same time as the bulbs, such as wallflowers, primulas, polyanthuses, arabis, alyssum, aubrietia purpurea, pansies, dielytras, iberis, &c. Get all plants of questionable hardiness, and any that are liable to suffer from wet or the attacks of snails, under cover. Choice alpines are more easy of preservation, if potted and put in frames. Auriculas, choice pansies, carnations, pentstemons, Brompton and intermediate stocks, myrtles, and even hollyhocks, if the situation is a damp one, must go to similar quarters for the winter, and have plenty of air in mild weather. Remove decayed leaves wherever they occur, to prevent the formation of moulds about growing plants. The ground for the best bed of tulips should now be forked over two feet deep, and lay four inches of cow-dung in the bottom of each trench, as you proceed.

Greenhouse.—Give plenty of air, day and night, and remove the shading, so as to let in all the sunshine that can be had. Avoid making up fires; but, when it becomes necessary to do so, make a brisk fire, so as to dry the house and promote a current of air; otherwise, push nothing into growth more than may be needful to ensure vigorous health and plenty of stamina. Chrysanthemums will now keep the house gay for a while, and, as they go off, fuchsias and geraniums, from summer cuttings, may be got into bloom by giving the plants good places and shelter from draughts. If mildew appears, use flowers of sulphur; for green fly, tobacco smoke. If aphides get possession of the tender crowns of cinerarias and fairy roses, and smoke fails to dislodge them, turn the plants upside down into weak tobacco-water, and then lay them on their sides, and syringe them well with soft tepid water.

Stove.—Beware of too much heat this month, for any excess will injure pines, and cause vines to push too fast for the amount of light they get. Give air freely on fine days, and keep a sharp look out for vermin of all kinds, which, at this time of year, frequently do much damage before they are suspected. Use gentle fires in damp weather, but let the temperature sink at night, to prevent spindling growths. Where grapes are desired to be kept hanging, a very dry air must be maintained; hence, plants in pots that require frequent watering, should not be kept in the same structure till the grapes are off. Bottom heat for vines, 85 degs.

TO CORRESPONDENTS.

PLANT AND SEED EXCHANGES.

We have often thought that a gardening periodical might render special and peculiar services to its readers, by acting as the medium of exchange between parties wanting certain plants, cuttings, seeds, &c., and those having such to spare. Journals of all kinds, scientific, literary and political, are mediums of intercommunication of ideas. Through the newspaper or magazine A discusses with B as on a public platform, and he who has an item of information to convey to the public at large, can do so in his own language, and his own name, and paper, and print, are at his service, free of cost for the purpose. But, in horticultural matters, *things* are as important as ideas:—A may tell B how to treat a plant, and if A wishes also to present B with a plant on which to experiment, why should he

not use the same means of communication? These, and other considerations, have determined us to act as agents for any of our readers who may desire to distribute seeds, plants, bulbs, &c., whether gratuitously or in exchange for subjects they may be in need of, and also to make known the wants of any correspondents who are unable to obtain what they want through the ordinary trade channels. Amateur cultivators will, we believe, find it advantageous to exchange duplicates, and surplus seedlings, and obtain in return subjects of which they are in need. The conditions under which we are disposed so to act are these:—1. That we incur no outlay, and receive no remuneration whatever. To conform to this rule, correspondents applying for seeds or plants offered, must enclose stamped and directed envelopes, and an extra stamp for postage to the donor. 2. Those having plants, seeds, &c., to give away, must send a list thereof, and state what they wish for in exchange, or if they will distribute them gratuitously. 3. Persons wanting subjects that are not to be obtained in the ordinary way; or which the dealers in their localities cannot supply, must state on what terms they desire to be supplied, whether in exchange for something they think of equivalent value, or without return of any kind. 4. The real name and address must accompany all correspondence on this subject, but the names will in no case be published without permission of the parties—indeed, we shall make it a rule never to publish names unless express permission be given. 5. Those who apply first, will, in all cases, be first served. 6. Communications on the subject to be addressed, as usual, "Editor, FLORAL WORLD, 5, Paternoster-row, London, E.C."

INDIAN SEEDS FOR DISTRIBUTION.—*F. A. S.* has received a large parcel of seeds from India, and "thinking it a pity not to share them with those with whom they would be more certain to succeed, will present packets to any subscriber, who will name what they require, and pay the postage of the packets and letters. If her offer is accepted, she hopes those who grow them will save seed of any that prove tolerably hardy, and send her a few seeds another season." To the names we have attached short notes, and, where necessary, synonymes, for the guidance of those who may desire to make a selection. A note of interrogation indicates that we are not acquainted with the species as named.

Creepers and Climbers.

Quisqualis glabra (stove).
Gærtnera racemosa *syn.* Hiptage mandablota (stove).
Dolichos species (greenhouse and cool stove).
Ipomea species (greenhouse).
Ipomea rubra-cærulea (stove).
,, polyanthes (stove).
Clitorea ternatea (stove).
Combretum grandiflora (warm greenhouse).
Convolvulus species (stove and greenhouse).
Centrostemma Braziliensis (stove)
Thunbergia species, from Burma (stove).
Abrus precatorious (stove).
Bignonia suberosa (stove).
,, multiguga? (stove).
,, indica.

Various Stove and Greenhouse Seeds.

Terminalia catappa (stove evergreen).
Melia composita (stove evergreen).
Tamarindus Indica (stove evergreen)
Cycas sphœrica? (stove herbaceous).
Tectona grandis (stove evergreen tree).
Patagonula sebestera *syn.* Cordia (stove evergreen tree).
Xanthoxylon emarginatus? *syn.* Sapindus (stove).
Mimusops Elengi (stove evergreeen).
Sterculia colorata (stove evergreen).
Melia sempervirens (greenhouse evergreen).
Erythrina Indica (greenhouse deciduous).
Clerodendron natans (greenhouse and stove evergreen).
Crotalaria latifolia (stove)
Tephrosia candida (stove evergreen).
Duranta Plumieri (stove evergreen).
Hibiscus Lindleyi (stove evergreen).
,, sabdariffa? (greenhouse).
,, syriacus (hardy deciduous).
Datura fastuosa (half hardy annual).
,, species from South America (greenhouse evergreen).
Canna Warszewiczii (stove herbaceous).
,, flaccida (stove herbaceous).
Solandra var. flore pleno (stove evergreen).
Pitcairnia latifolia (stove herbaceous).

FAILURE OF GREENHOUSE PLANTS.—*Li.*—We are really pained to hear of your misfortunes, and from your account, hardly know what to advise, but a few points occur to us as likely to be involved in the causes of the disaster. First, equal parts of rotted turves and dung is rather too strong a compost for Fuchsias; secondly, your frequent use of liquid manure is still more likely to cause the plants to turn yellow, and shed their leaves. It is the easiest thing in the world, to saturate a plant with manure, and its death is quite likely to follow. Plethora and starvation are very much alike in their results, just as burning and freezing are, and, from your account, we should certainly not conclude that your plants were starved. Did you use new, or at least, clean pots? Did you give sufficient root-room, by shifts, as required? Did you keep your house sufficiently aired, and the *air sufficiently moist?* Did you grow the plants too fast in the winter, when there was not enough light to give substance to the wood? Did you keep up the heat more at night than in the day time? And, lastly—Is the house heated with any abominable apparatus, that generates poisonous fumes? To answer these queries in your own mind will not be five minutes' work, and the consideration of the several points may lead you to discover for yourself the source of your troubles.

RENOVATING FLOWER-BEDS.—*C. R. S., Cheadle.*—If the exhausted beds have a good bottom, we advise removing the top spit, and replacing it with a mixture of virgin earth from an upland mixture, well chopped up with old chippy cow-dung, and a good proportion of leaf-mould; say, if you can obtain the quantities, equal parts of each of the three ingredients. But, as we know nothing of what the beds now contain, we can hardly advise with safety. If you can get the beds empty this winter, the best way will be to take off the top spit, and fork over the subsoil, so as to let the frost and snow penetrate it; then get a good supply of burnt clay, and hot-bed dung, and chop them down together in a ridge, and let them be well frozen, and fill up the beds with the mixture early in March, and they will be in admirable condition for planting as soon as they have settled. Chippings of hedges, refuse wood, straw, &c., built up over a hole, and packed round with cakes of old turf, and then burnt, make a capital dressing to dig into the old soil if you cannot well get new material to replace the worn-out stuff. If used chiefly for bedding-plants, a compost of leaf-mould, and sandy soil from a common, equal parts, and one fifth of the whole very old dung, would prove a good mixture. Bedding-plants do not require a rich soil so much as a *new* soil.

WINTERING GERANIUMS, ETC., IN SHEDS.—*M. S. W.*—Many an amateur has no better place than a shed with top-light in which to winter such things as geraniums, fuchsias, &c., and, somehow, they get through the difficulty. Severe frosts will kill such things; but while frosts last, the plants

may be buried in darkness for a fortnight at a time, by means of mats, or even a temporary thatch of straw, or turf, to be removed at the first break of the weather. The drenching rains of October and November ruin tender plants exposed to it, more than a slight frost, and, indeed, render them unable to bear a little freezing. If got under cover before the heavy rains set in, protection from *severe* and long-continued frosts is all that is necessary. Try one of Carman's patent stoves, sold by Carman, of Newgate-street, London, and burn in it charcoal dust, with the finest of the powder sifted out. It may be suspended in the centre of the shed, and is a very safe means of keeping frost out. But beware of making a dust among the plants. If your shed shuts up close, a large stone bottle, holding from four to six gallons, painted outside with lamp-black and size, would, perhaps, suffice, if filled every night and morning with boiling water during frosty weather, with a few mats outside.

Taking up Geraniums.—*A Young Gardener*—Take them up complete, and with as little damage to the roots as possible, and at the very first opportunity, before heavy rains come. Take off the flower trusses only, but do not damage a leaf. Pot them in as small pots as you can get them into, using pure loam and sand only—no leaf-mould, and no manure. Syringe them frequently, and keep them close and warm till they hold up their heads, and then give them plenty of air and light, and, with heat enough to keep out frost, you have nothing to fear. Mr. Hibberd spoke of cutting off the leaves only of plants that were to be hung up by the heels—if potted, and kept growing, the more leaves the better. Two things bear in mind: Where there is only enough heat to *keep* the plants, they should not be pruned till spring—the knife should not touch them, and every old geranium is of more value than half-a-dozen young ones. Some people throw away the old stumps—foolish practice! Keep cupheas, but throw away ageratums, as not worth the room they will occupy, unless you wish to keep a few in bloom till after Christmas, which you may easily do.

Oleander.—*H. Nixon.*—Nerium Oleander is decidedly a greenhouse plant, and one of those which cannot be well grown by makeshift methods, as geraniums, and many other such, can. They require a winter temperature, averaging 45 degs., and will enjoy a temperature of 70 degs. when pushing into bloom. To do any good with them, they ought to be started early in spring, in a rather high temperature, and be kept very moist after they have commenced growth. The proper soil for any of them, is a mixture of peat, two parts, loam, two parts, and one part of cowdung, and one part leaf-mould. The blossoms come on ripe shoots of the previous year. The three species in cultivation are Nerium odorum, red; Nerium oleander, red; and Nerium thyrsiflorum, pink. Of these, the following varieties are very beautiful, and as they bloom in August, serve to keep the house gay, when the chief part of the stock is turned out for the season—Carneum, flesh-coloured; album, white-flowered; variegatum, striped.

Mandevilleas and Passifloras.—*Amateur.*—If you have a conservatory with a border, plant out the Mandevillea at once without breaking the ball. It never does well as a pot plant, but is a fine conservatory or greenhouse climber, where it can have head and root room, and a temperature of 45° to 50° all winter. Passiflora cœrulea you may shift into a next sized pot, and keep in a frame or greenhouse all winter, and next May to be turned out under a south wall, there to remain as a hardy climber—that is to say, if you live any where within hearing of the nightingale. If your house is near John O'Groats, or in any bleak position, use it as a greenhouse climber, in the same way as we advise for the Mandevillea sauveolens. Passiflora racemosa, must have stove or warm greenhouse treatment, and will do as a pot plant if you shift, as it requires more room; but it is better planted out, with a good space, to run along a rafter.

Delphiniums.—*C. D.*—Formosum is decidedly an improvement on Hendersonii, having larger flowers, and a more dwarf habit; though the latter is a lovely and most useful sort. You did quite right by your roses; we supposed, from your statement, they had only just been budded.

Passiflora cœrulea.—*Subscriber.*—Train in the strongest shoot of each, thin away by cutting close to the root, all superfluous spray, so as to expose the main stems to be ripened. In March cut in the roots, so as to confine them to a radius of not more than four feet, or even three feet from the collar, to check their excessive luxuriance.

Thompson's Gas Stove.—At last, we hear of one case in which this invention has given satisfaction. We have no permission to publish the name of the proprietor, whose gardener writes to say, that a conservatory and greenhouse are efficiently heated by it. *J. G. M., Surbiton.*—The invention has been altered since it was first brought out. If yours is so constructed that the consumed air passes right away at once, you may get on very well with it. If the heated air has access to the house, you may get on very well for awhile, but your plants will be in danger, and may, some day or other, exhibit the effects of contact with poisonous vapours.

Humea elegans.—Several correspondents have written in answer to *Q*, all agreeing that Humea elegans does *not* produce any unpleasant effects on the skin when handled, or even if the face is for several minutes covered with its sprays. To prevent young plants damping off, put a mixture of powdery peat and silver sand round the collar of each. They ought to be sown in spring and put out all the summer to get them strong before housing. Late sown plants are the most likely to break down in winter.

Holly Berries.—*Novice.*—Gather the berries when dead ripe, and heap them together in sand in a spare corner, exposed fully to the weather. Turn the heap every two or three months for a year, then sift out the seeds, and sow in February in beds of fine rich soil. Raising hollies is slow work, but very sure. It is very difficult to strike them from cuttings, but it can be done, as may be seen at the Highgate Nurseries, where Mr. Cutbush strikes them by thousands under hand lights.

Salvia Leaf.—*S. J. C.*—Eaten at night; by what we cannot say. There is a slight trace of the black spots which thrips deposit as they feed, but you would have found thrips had they been there.

Evergreens.—*J. B.*—Evergreens moved last spring ought to have had abundance of water all the summer, to get them established. The one you speak of as dead, is very likely not dead, and if cut over close to the ground, may throw up fresh growth from the root. The sprig sent is one of the lighter kinds of arbor vitæ.

Laburnum in Bloom.—*H. S. T., Rye.*—The Laburnum in bloom in the garden of the parish clerk, at Brede, in Sussex, is not an exceptional case. Laburnums frequently bloom twice in the same season, so does the Glycine sinensis, or purple laburnum. We have a Ribston pippin apple at the present time covered with fruit, and well sprinkled with blossoms. The fact is interesting, but not extraordinary.

GARDEN ALMANACS.—*W. W.*—"The Garden Oracle" will contain the lists you require, and the fullest information to guide you in making selections for the garden and greenhouse. It will be published on the first of November at one shilling, and will be distinct from all other works of the kind, and peculiarly adapted in its contents to the country and suburban home.

ROSES.—*J. Denenigh.*—Send fourteen stamps to our publishers, and tell them to send you No. 6 of "Garden Favourites," and you will have a complete and reliable epitome of rose-culture, including budding and grafting. The subscription for the "FLORAL WORLD" is 4s. a year.

DIANTHUS SPECIES.—*J. R. F.*—We cannot name your specimens, nor inform you where to get seed. These unimproved forms of flowers are not cared for by florists, and hence the only way to secure seed is to save it from the plants.

GRAPES IN POTS.—*Invicta* would be glad if some reader, experienced in growing grapes in pots, would furnish a short outline of the routine treatment. See October work for the way to treat cinerarias.

WALTONIAN CASE.—*F. W. F.*—*A. B. C.*—May be had of the original maker, Mr. West, Victoria-road, Surbiton, Surrey, price 42s. It is heated by means of a small oil lamp, burning colza oil.

GRAPES SHRIVELLED.—*Tyro.*—Send us one of the worst bunches, and we will advise you how to prevent a recurrence of the disaster.

HOT-HOUSE.—*P. Cotes.*—We know of no such work as you require, nor of any reprint of Mr. Barnes's papers.

VERBENA POTS.—*Rev. R. T. M.*—Write to Albert Deam, Esq., Colchester.

INDEX.—*J. G. T.*—We will not spoil the little ship for a ha'porth of tar.

METEOROLOGICAL CALENDAR FOR OCTOBER.

31 DAYS.		WEATHER NEAR LONDON, OCT., 1857.				31 DAYS.		WEATHER NEAR LONDON, OCT., 1857.			
		BAROMETER.	THERMOM.	WIND.	RAIN.			BAROMETER.	THERMOM.	WIND.	RAIN.
		MAX. MIN.	MX. MN. MN.					MAX. MIN.	MX. MN. MN.		
F.	1	30.063—29.999	60 41 50.5	SW	.01	S.	17	29.976—29.881	65 49 58.5	S	0.27
S.	2	30.174—30.013	65 53 59.0	SW	.00	M.	18	29 855—29.765	59 50 54.5	SE	0.26
S.	3	29.983—29.969	66 48 57.0	SW	.00	Tu	19	29.666—29.590	61 49 57.0	NE	0.20
M.	4	29.704—29.639	64 43 53.5	NE	.02	W.	20	29.712—29.689	62 47 56.0	NE	.00
Tu	5	29.670—29.659	65 34 49.5	SW	.08	Th	21	29 636—29.617	60 50 55.0	NW	0.01
W.	6	29.732—29.688	66 32 49.0	SW	.00	F	22	29.687—29.583	51 41 46.5	N	2.16
Th.	7	29.445—29.077	64 48 56.0	SE	.22	S.	23	30.081—29.852	63 38 50.5	SW	.00
F.	8	29.103—28.781	63 41 52.0	S	·55	S.	24	30.050—30.045	62 38 50.0	E	.00
S.	9	29.553—29.248	55 40 47.5	W	.04	M.	25	29.801—29.790	60 37 48.5	NE	.00
S.	10	29.833—29.716	64 46 55.0	W	.20	Tu	26	29.833—29.753	63 38 50.5	SE	.00
M.	11	30.050—29.820	68 54 61.0	SW	.02	W.	27	29.866—29.721	64 33 51.0	SE	.00
Tu	12	30.177—30.095	69 45 57.0	SW	.00	Th	28	30.011—29.952	61 34 49.0	SW	.02
W.	13	30.189—30.176	66 36 51.0	SW	.00	F	29	29.939—29.843	60 38 49.0	SW	·04
Th	14	30.149—30.027	64 40 52.0	E	.00	S	30	30.015—29.664	58 27 42.5	SW	.12
F.	15	30.016—30.020	58 50 54.0	NE	.00	S.	31	30.111—30.028	60 31 45.5	SW	.00
S.	16	30.008—29.989	62 51 56.7	E	.00						

AVERAGES FOR THE ENSUING MONTH.

THE average temperature of October, is 50°; in October, 1857, it was about 54°, and the growth of plants was considerably prolonged. The first week of the month was 1° above the average, the second week nearly 3°, the third week 3°, the fourth week 2°, and the last week, including a few days of November, 5½°. The highest temperature registered in the month of October, during the past thirty-one years, occurred on the 5th, 1834, thermometer, 80°, and the lowest, on the 21st, 1842, thermometer, 20°. On the 14th, 1845, the temperature reached 76°, and on the 21st, 1846, 72°. October is a rainy month, the fall averaging 3 inches, but it has amounted to more than 4 inches, and the sowing of wheat has been in consequence deferred. The greatest quantity of rain ever measured, occurred in October, 1841, when it amounted to 4.383 inches. The following are the meteorological averages for October, deduced from observations extending over sixteen years:—Maximum temperature, 58°; minimum, 43°; mean, 50°; Barometer, 29.859; amount of water in a cubic foot of air, 3.5 grains, average full of rain, 3.3 inches.

PHASES OF THE MOON FOR OCTOBER, 1858.

● New Moon, 7th, 2h. 7m. a.m.
○ Full Moon, 22nd, 3h. 19m. p.m.
☽ First Quarter, 14th, 12h. 42m. a.m.
☾ Last Quarter, 29th, 8h. 23m. a.m.

MEETINGS AND EXHIBITIONS, OCTOBER, 1858.

THURSDAY, 7th, National Floricultural, at 21, Regent Street, Monthly Meeting. Same day, British Pomological.—THURSDAY, 28th, British Pomological,

* *Secretaries will oblige by forwarding Announcements, Schedules, &c., of forthcoming Exhibitions.*

THE

FLORAL WORLD

AND

GARDEN GUIDE.

NOVEMBER, 1858.

PINES, cedars, firs, and larches, take the lead in the noblest family of ornamental trees we have, and almost every climate on the face of the earth, has contributed to our parks and gardens fine forms of coniferous vegetation. The older species of pinus, abies, and taxus, have an European reputation, both as regards their numerous uses in the arts, and the special tone they give to scenes in which they form conspicuous features, as well as for their association with pre-historic events in an age when the vegetation of this country, and many parts of Europe, consisted mainly of them. Over vast portions of Scandinavia, Germany, and Italy at the present day, as for centuries past, pines and firs are the most conspicuous features of the scenery. We cannot call to mind any of the picturesque associations of the Western continent without more or less connecting them with the "pine woods," and many of the brightest pages of the American novelists and poets, are steeped in the odours of burning pine knots, as well as lighted by the sunshine of the boundless prairies. North America possesses, indeed, the most extensive pine forests in the world; the "pine barrens" extend in some districts, over a linear space of from 300 to 500 miles, and, as in some parts of the western continent, huge thistles are the only objects on which the eye can rest, when commanding from an eminence the vast panorama of rolling plains, so in others an ocean of pines stretches away on all sides without a single break, and hems in the horizon with a continuous black line of the most sombre vegetation. In stature and majesty, too, the coniferous vegetation of America is unequalled; and since we have become familiar with the scenery and products of that extraordinary country, California, we have ceased to be amazed on hearing of trees 300 feet high, occurring not as rare examples of individual growth, but congregated in vast belts of

forest where the vegetation is all on the same scale of grandeur, and the pines the most remarkable features of the scene.

In addition to the prevalence of pines, a peculiar interest attaches to their history, whether viewed from the point of mere utility, or considered as elements of the picturesque. Their general hardiness, and the fact of their flourishing in barren elevated regions, where few other tribes of plants find either sufficient food or shelter, add to their claims on our attention, as objects of botanical study, and as subjects for culture; for though from their commonness they are homely things, yet they are so mixed up with the incidents of romance, travel, and adventure, that the appearance anywhere in the landscape of a towering fir or spreading cedar, is sufficient to excite emotions of the most pleasing kind; their majestic outlines embellish the sacred narrative, and their presence adds to the sublimity of the descriptions given us of the wildest scenes of nature.

The appearance of a work wholly devoted to the history of the Conifers, is to us an interesting event in the annals of horticultural literature. But few attempts have been made to systematize the existing knowledge of the subject, and though the beautiful octavo volume before us may be truthfully spoken of as a masterpiece, there remains much yet to be accomplished, especially as to the determining of some generic and specific distinctions, and the assigning to their proper places some examples that have hitherto refused to comply with the established principles of classification. As this is the season for planting, and as the Conifers are becoming more and more popular as ornaments for parks and gardens, the appearance of Mr. Gordon's "Pinetum" is opportune; and, having read the work with pleasure and profit, we here commend it to our readers as an admirable, and, indeed, the only text book on the subject,* and its preparation was a task for which Mr. Gordon was well fitted, from his long experience as superintendent of the gardens of the Horticultural Society at Chiswick.

"Regarded from almost every point of view," says the author, "this tribe possesses great importance. In the northern regions, its members out-number the common broad-leaved trees, by about *ten to one;* they are mostly distinguished for majesty or symmetrical gracefulness; and their timber, from its length, straightness, and strength, is most valuable in the arts." A striking characteristic of the tribe is its partiality for elevated regions, and in the economical applications of the timber and secretions—the almost universal presence of resin distinguishes them from all other tribes. In Sweden, Norway, Russia, Poland, and Prussia, the pine and fir forests are immense, and they follow very closely the configuration of mountain lines. The Gulf of Bothnia, says Dr. Clarke, is surrounded by one continuous unbroken forest, as ancient as the world; in the temperate and northern zones of Europe, they accompany mountain ranges, varied in species according to the soil and degree of elevation, and ascend to the regions of perpetual snow, where they still flourish in perpetual verdure, the giant guardians of silent solitudes. Their preference for a soil consisting chiefly of the debris of granitic rock, with a dry subsoil, combined

* The Pinetum, being a synopsis of all the coniferous plants at present known; with descriptions, history, and synonymes. By George Gordon, A.L.S., assisted by Robert Glendinning, F.H.S., of the Chiswick Nursery. London: H. G. Bohn.

with their extreme hardiness, accounts for their mountainous character, and the secretion of resin no doubt gives them a power of resisting winds and frosts unhurt, to a degree of which they would be incapable, had not the Creator wisely have fitted them in their physiological economy, for the peculiar circumstances under which they flourish. In the arctic regions, the red spruce is the last example of arboreal vegetation seen by the explorer, as, in the opposite hemisphere, Podocarpus nivalis is the last seen among the perpetual snows of Tongariro in New Zealand. On the Sierra de la Nieve, Picea pinsapo abounds on the most elevated plateaus, and hangs out its green banners from crags where the snow lies five months in the year, at an elevation of 5,000, to 6,000 feet. The common Larch, unequalled in the kingdom of trees for grace and beauty, flourishes in perfection only when at an elevation of from 3,000 to 9,000 feet, its proper range being the medium between those extremes; and, on the French and Swiss Alps, the Carpathians and the hills of Hungary, it attains its finest proportions only when battling with the mountain blast, and daring the winter, in exposed positions, for many months in the year in the midst of snows and glaciers. The Siberian spruce is found on the Altai mountains, and in Siberia, at elevations of 4,000 to 5,000 feet; the Californian fir at from 5,000 to 6,000 on Cascade Mountain; the noble Cedrus Atlantica, on the famous Atlas range, at 7,000 to 9,000 feet; and in the Himalayas, the famous Deodara, which forms a pretty furnishing plant in a pot or tub, attains a height of 150 to 200 feet, and forms vast belts of sublime vegetation at elevations of 6,000 to 12,000 feet, where Pinus gerardiana often keeps it company. The true pines and the silver firs are essentially mountain trees. Besserer's pine flourishes on Mount Ajusco at 11,000 feet above the sea level, and, in good positions, attains to a growth of 150 feet. Pinus scoparia, the Broom pine, is of similar stature, and is found at an elevation of 13,000 to 14,000 feet; P. Vilmoriana is still more majestic, growing to 160 feet, with gracefully drooping branches, and rejoicing in the rarefied atmosphere of ranges 11,000 feet above the sea level. Hartweg found the Orizaba pine at an elevation of 10,000 feet, growing in company with junipers. P. Comonforti abounds on the Mexican hills, at an elevation of 11,000 feet, and others of the family similarly distinguish themselves as the finger-posts to solitudes where clouds and snows and silence keep habitation to themselves, undisturbed by animal voices, and uncheered by even a lonely tuft of grass or lichen.

But the conifers are not exclusively mountain trees: many of the beautifully foliaged species lately introduced to our gardens from Japan and China, flourish in low sites, and rejoice in shade and moisture. Where the graceful Cryptomeria japonica has failed, it has usually arisen through treating it as a pine instead of a yew, and planting it in dry, barren, and elevated spots, instead of in a rich soil with plenty of moisture. The Taxodiums are all partial to low situations: T. distichum, the deciduous cypress, flourishes in the swamps of Carolina and Georgia, and T. sinense grows in the swamps of Japan, and, somewhat exceptional in the case of the pines, P. rigida, is very partial to wet ground. They differ also in other particulars; most of them perish soon if planted near the sea, but Pinus pinaster is one of the best trees for planting on the coast. P. radicata is another that bears sea-breezes well.

As they differ widely in habitat, the majority preferring cold, barren,

and elevated regions, while others make their abode in dismal swamps, so they exhibit extremes of habit in growth, a large number being mere dwarf bushes and trailing shrubs, while to the same tribe we must go to find the tallest trees in the world. The pines of northern Europe are the most apt to vary, the same species often producing trees of gigantic growth, and diminutive bushes. Abies alba is a noble tree, which forms a pyramid of silvery vegetation, but we have a dwarf variety, A. alba nana, which forms a dense bush of only three feet high. Abies excelsa is a lofty tree, attaining a height of 150 feet, but it produces several dwarf varieties, some with weeping branches, and some with silver and gold variegations. To compare the two species with A. excelsa pygmea, which does not rise more than a foot from the ground, or with A. excelsa elegans, which is a compact tree of only four feet, would be to learn a curious lesson in vegetable physiology, the tallest of the pines being the parent of the most dwarf variety we have. In the same way Abies nigra is a tall tree averaging 70 to 80 feet, but its variety pumila, never reaches above four feet, and rarely ascends higher than three. The red, or Arctic spruce, grows, in a loamy soil and sheltered situation, to a height of 80 feet, but, on the bald acclivity of an Arctic precipice, it becomes a close dwarf bush, as unlike a fir as a clipped box in a cottage garden. This, indeed, is the last of arborescent vegetation found in Arctic climes, and may be said to be the hardiest of its race. Even Cedrus Lebani, the towering cedar of Lebanon, gives us a dwarf variety, nana, which grows only three feet high, as well as a silvery-leaved and a pendulous variety. Biota orientalis is also a rich foliaged evergreen bush of 18 or 20 feet, but its varieties differ considerably, from Sieboldii, which the Japanese grow as a miniature pot plant, to the gold and silver leaved variegata and argentea. B. orientalis aurea, is a bush of only two feet high, possessing a foliage of the most beautiful golden hue, and during winter is superb in the richness of its variegated tints. Chamæcyparis sphæroidea, a tall evergreen species of white cedar, has a very different configuration from its dwarf variety, nana, which is a diminutive bush of quite different habit to its robust parent. Taxus adpressa, which is a dwarf species, and Podocarpus koriana, may, with the junipers and savins, be added to the above as valuable dwarf conifers for the embellishment of gardens.

The pines noted for majestic growth, are, however, the most numerous. Abies, Pinus, Picea, Cedrus, and Araucaria, furnish the most remarkable forms of gigantic vegetation. A. pattonii, the giant Californian fir, discovered on the Missouri, by Lewis and Clark, is said to attain 300 feet in height, the stem being bare for 200 feet, and commonly having a girth of 42 feet. Smithiana is another of the lofty Abies, and one of the most superb of its family, attaining 150 feet, with a graceful sweep of branchlets, and a general outline of the most majestic character. Douglasii and Mertensiana commonly grow to a height of 150 feet, and the first sometimes reaches 200. Among the silver firs, Picea religiosa, the sacred silver fir of Mexico, which is used there for the decoration of churches, is often found of a stature of 150 feet, at 9,000 feet of elevation on the mountains of Angangueo. Picea amabilis, the lovely silver fir, reaches a stature of 250 feet in a gravelly soil, at an elevation of 4,000 feet, some of the trees having clean mast-like stems 60 feet clear without branches, and from 15 to 20 feet in circumference. Picea grandis grows

180 and 200 feet high ; P. pindrow 150 feet ; P. nordmanniana 100 feet ; P. nobilis 260 feet. Pinus lambertiana, growing in pure sand in the northern parts of California, attains an altitude of 200 feet, with a straight stem, 100 feet clear of branches, and of 60 feet girth near the ground. The Weymouth pine, the slender-leaved pine, P. tenuifolia, P. bullata, P. carrierei, and P. sabiniana, are others of the family of Pinus, the most noted for their lofty stature and noble proportions. P. cedrus, the Mexican cedar pine, has the nearest resemblance to the cedar of Lebanon, of any of its race, having not the least appearance of a pine when viewed from a distance, the stature being 60 feet, with spreading branches from the ground to the summit, forming a regular pyramid from the base, and shading a space of 400 feet in circumference. For additional examples of lofty growth, or particularly fine proportions, we may instance among Cupressus—Benthami, excelsa, Knightiana, Lawsoniana, the handsomest met with by Mr. Murray, in his explorations of California—Lusitanica, Nutkaensis, and tortulosa. The last named is a remarkable cypress, it grows to a great size ; trees of 10 to 15 feet girth are common in northern India, and Major Madden describes those met with on the mountains of Nynee Tal, at 4,000 to 6,200 feet elevation, as stately trees, 150 feet high, with stems as straight as arrows, and the drooping branches so symmetrically arranged as to make each appear a perfect cone—the largest measured by him was $16\frac{3}{4}$ feet in girth, at five feet from the ground. Whitleyana is another fine cypress, which grows to 100 feet in the gardens of Kohaut and Peshawur. Among the Araucarias, we have many unsurpassed for magnificence, while their distinctness of character adds to the interest with which their large growth invests them. The well-known A. imbricata, or monkey puzzle, so much prized in our gardens, for its whorled foliation and spiral arrangement of branches, attains a height of 150 feet on the western declivities of the Andes, where it forms vast forests on the verge of the snow line, and is rarely seen at more than 2,000 feet below it. A. excelsa, Bidwilli, Braziliensis, Cooki, and Cunninghamii, are others of the family, noted for their majesty and large stature. The species of cedars are pre-eminently majestic, and may be considered as the noblest of all evergreen trees. The cedar of Lebanon is a frequent subject of comparison and metaphor with the sacred writers, as well as an important tree in the geographical and historical incidents of holy writ. The name, indeed, is derived from the brook Kedron, in Judea, on the banks of which the stately cedar of Lebanon is found in plenty. All the species are mountainous, and all are historically interesting. C. Atlantica, the cedar of the Atlas Mountains, has the fine, tabular head, common to the genus, and grows to a height of 100 feet, at 700 to 800 feet above the sea, on the Atlas range. The famous Deodora cedar, now to be seen in almost every garden, where it has the grace and delicacy of a weeping willow, and the robustness of an English oak, attains to gigantic proportions on the upper ranges of the Himalaya, where it is found abundantly, at an elevation of from 5,000 to 12,000 feet, and again in Kaffristan, it forms dense forests, at 10,000 feet above the sea, and forms individual specimens of immense size. In the forests of Lower Kamaoon, they measure 20 to 27 feet in girth, and Major Madden measured one tree, in 1830, which, at 5 feet from the ground, had a girth of $36\frac{1}{2}$ feet, and on a subsequent journey, he met with many in the Boorum and Roopin passes,

30 feet in girth, and 150 to 200 feet high. Dacrydium cupressinum, the spruce fir of the New Zealand settlements, grows to a height of 200 feet, and 15 feet in circumference, with pendant branches and drooping shoots, clothed with leaves, that exactly resemble some of the Lycopodiums. This, however, is a tender tree in Britain. The Californian redwood, Sequoia sempervirens, is still more gigantic, frequently attaining 300 feet, and being commonly met with over 200. "One tree," says Mr. Gordon, "called by the American settlers, the 'giant of the forest,' measures 270 feet high, and 55 feet in circumference six feet from the ground; and there is, at St. Petersburgh, a horizontal slab of the wood received from the late Dr. Fischer, from the north-west coast of America, which measures 15 feet in diameter, and 1,008 annual rings mark its age." This brings us to the Californian wonder, lately introduced to our gardens—the Wellingtonea gigantea—of the marvellous growth of which, visitors to the Crystal Palace have a notable example, in the shell of a specimen there set up for inspection, by Mr. G. L. Trask. Wellingtonea gigantea was first discovered by Douglas, in 1831. The American settlers call it the "mammoth tree," and, according to Mr. Trask, the following are the dimensions of the largest of eighty trees, growing in a grove, viz :—height, 363 feet; circumference, near the ground, 93 feet; circumference, 100 feet from the ground, 45 feet; bark, 18 inches thick; age, according to annual rings, from 3,000 to 4,000 years. As this has deservedly become popular as a decorative tree for lawns and shrubberies, and as a valuable addition to the Pinetum, the following measurements of specimens, now growing in various places, of which particulars have lately been furnished to the columns of the *Chronicle*, may be interesting to our readers. At the Holgate Nursery of Messrs. Backhouse, of York, 5 feet 9 inches high, and 15 feet circumference of branches. At Acton Green, 6 feet, 9 inches; 4 feet 9 inches through, stem 12 inches in circumference. At Uffculme Vicarage, Cullumpton, Devon, 7 feet, 10 inches; 16 feet circumference; stem, 16 inches in girth. At North Rode, near Congleton, in the garden of Thomas Daintree, Esq., 7 feet 6 inches; 17 feet circumference; stem, 12 inches in girth. At Fairlawn-park, Tunbridge, 7 feet high; 6 feet 5 inches in diameter; circumference of stem, 15½ inches: when planted, in May, 1856, it was only 10½ inches high; a growth of more than 6 feet in three seasons. At Tortworth Court, 7 feet 9 inches, by 6 feet 1 inch diameter; at 1 foot from the collar, 1 foot 5 inches. At Exeter, in the nursery of Mr. Veitch, 9 feet 6 inches high, 6 feet through, girth of stem 15 inches; and another 8 feet 9 inches high, and 6 feet 6 inches through, girth 19 inches. At Hillersdon, East Devon, 7 feet 8 inches; breadth, 7 feet; girth of stem at 1 foot from the ground, 4 inches. The largest is probably that at Lamorbey, at Bexley, Kent, the seat of J. Malcolm, Esq., which, in September, 1857, was 7 feet 2 inches high, having grown 3 feet since the May previous, and is now probably, nearly 10 feet high.

The delight of the gardener is to get sports and varieties; true species, in their normal forms, do not long satisfy him. The freaks of nature, and the changes which he may be capable of effecting by hybridising and special modes of culture, open up the fields which he has the greatest zest in exploring. In this respect, the conifers take no second place. As we have stated above, and cited instances in illustration, many of the pine

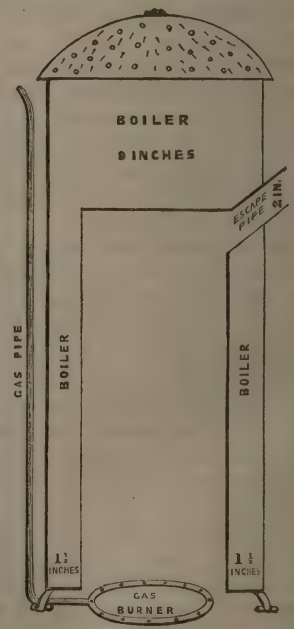
varieties differ in a remarkable manner from the species out of which they have originated, and varieties with dwarf, pendulous, and shrubby habits, and with variously-tinted foliage, enter largely into the list of conifers suited for garden decoration. The variegated cedars, pines, junipers, larches, spruces, are, as enumerated and described by Mr. Gordon, most abundant, and, in the generality of cases, possess most attractive features, so that in the Pinetum there need be no lack of diverse colours. The variegated Araucarias, Biotas, and Piceas, are among the most beautiful of fine foliaged trees ; and for the embellishment of rock-work, lawns, and wilderness borders, there is a large variety of sports in all the hardy genera, from Cedrus Deodara, to the pretty creeping junipers. For grace and beauty, as garden ornaments, what can surpass the variegated Yew, the Cryptomeria japonica, the common and rarer species of Larch, Pinus Devoniana, with its grass-green leaves, nine inches long ; the Silver Spruce, the striking Cupressus Fortuni, C. Attenuata, and C. Funebris ; the elegant Thujopsis, and the common Chinese and American Arbor vitas ? Cupressus macrocarpa is one of the finest cypresses yet introduced, its vivid green being scarcely equalled, even by Thuja plicata, or T. compacta, which are among the most valuable of garden conifers. Among the pines specially distinguished for grace and beauty, we have Devoniana, Macrophylla, with ample foliage ; Russelliana, with fine dark-green leaves ; Endlicheriana longifolia, and Escandoniana, both of exquisite proportions ; Hoseriana, with its regular branches spreading out straight, and then turning up at the ends in a most striking manner; Magnifica, with its palm-like plumes of splendid foliage; Michoacaensis, with its long leaves, and huge handsome cones; Nesselrodiana, with long leaves, in tufts and bundles; and, to conclude the list, because we cannot enumerate all that deserve it, Ocampii, prasina, protuberans, Regeliana, leafed to the ground; Thibaudiana, and Endlicherianus, remarkable for its ample foliage. Returning to dwarfer kinds, we would note, as specially adapted to purposes of garden decoration, Juniperus hemisphærica, drupacea, the best of them all; nana, the most dwarf, growing only a foot high; rigida, Japonica, excelsa variegata, prostrata, and Sabina, the common Savin, of which there is a pretty variegated variety.

That we cannot treat of the uses of the Conifers in the arts, and in domestic life, is because the catalogue of their utilities would require too much space, and we have already exceeded our proper limits. The Deodara cedar produces the finest timber in the world, and is almost imperishable. Pinus sylvestris gives us yellow deal ; Abies excelsa, white deal ; and Pinus strobus, white American deal. The Bermuda juniper provides us with wood for black-lead pencils. Liquid balsam, resin, turpentine, tar, pitch, and lamp-black, are products of pine secretions. The Norway spruce produces the yellow resin used in the manufacture of soap. Spruce beer has a fame beyond the country of its manufacture Olibanum, and sandarac, are from the Junipers, which also yield from their berries the flavour of the least reputable, though most popular of stimulants. Pinus rigida is the "pitch pine" of the Americans—the resinous smoke, and bright flames from its burning knots, gleam romantically over many a page of prairie romance, and many a stirring narrative of sport and woodcraft. The candle-wood of the Mexicans is P. Teocote, and P. longifolia furnishes the chips called "chamsing," which are used as night lights in India, and

which, in burning, emit a most delightful fragrance. Many of them furnish food to Scandinavian peasants, and Chilian mountaineers. The nuts of Araucaria imbricata are eaten by the Indians, roasted, boiled, and made into bread; the nuts of A. Brasiliensis are sold as an article of food in Rio, and the resin of the tree is used as wax for candles. But here we must hold, or we shall require the whole space of a number, and then find we have but half told the story of the Pinetum. We have set before the reader such particulars of general interest as were noted down during a careful, and not wearisome, perusal of Mr. Gordon's book, which is much more systematic in its contents, than our notes from it might make appear. It is the work of a man of science, who practically understands his subject, even to minutest details; its manner is as simple as the plan of orderly treatment will allow, and to the clear and readable descriptions of species and varieties, the author has added a copious index of 1,700 names, which, in itself, is a valuable catalogue of species and synonymes. If the dates of introduction had been given, the work would, in our opinion, have been greatly enhanced in interest; but, forgetting this omission, the book commends itself as an able review of one of the most interesting sections of the vegetable kingdom.

TROTMAN'S ECONOMIC GAS STOVE.

THE subject of gas-heating being one of great interest and importance, especially to amateurs possessing but few plant structures, we have thought it advisable to introduce to the notice of our readers, an invention which seems likely to realize all that can be desired as a simple and inexpensive means of heating where a supply of gas can be obtained. It is known as Trotman's gas stove, and was exhibited at the last Chiswick Meeting of the Horticultural Society. The stove stands about 30 inches to the top of the lid; the diameter 9 inches. The centre to within 6 inches of the top is hollow, so that the flame from the burner is in the centre of the water, thus economising the heat. The foul air passes away by a pipe through the water, and afterwards can be carried about the house as convenient, but must not be carried horizontally, or there will be a likelihood of a back draught. The pipe produces a considerable amount of heat, and is no more objectionable than a common flue, hence it may be used to heat the back wall, or run under a stage. The heat from the stove itself is the same as other hot-water apparatus. The lid is perforated, and the moisture thus obtained will counteract the dry heat from the pipe. There is no escape of foul air whatever if properly set, which is very simple. Those who used it last winter, pronounce it safe and economical, and most easily managed. Its simplicity is one great recommendation for its adoption wherever gas is available, as it is



the cheapest, cleanest, and least troublesome of any method of heating small greenhouses.

PROFITABLE GARDENING.

CHAPTER VIII.—GENERAL ROOT CULTURE—CARROT, PARSNIP, TURNIP.

Tap-rooted plants like a rich, deep, light soil in fine tilth, and with no recent manure present in it. The ground should be dug two spades deep, and ridged up during winter, to produce a fine crop of carrots or parsnips, and a piece should be chosen that was well manured last season. If manure seems requisite, it should be laid at the bottom of the trench. Pigeons' dung is an excellent manure for carrots. The parsnip is the hardiest and the most generally useful; indeed, where there is a family, an immense number can be used during winter and spring, but both carrots and parsnips are delicious, if cooked fresh-drawn from the bed, just before they have completed their growth for the season.

For a new early crop of carrots, choose the Early Horn, and sow on a slight hot-bed at the end of January. A bed two feet and a half high will do, because a great heat is not necessary. As soon as the rank steams have passed off, cover the dung with about ten or twelve inches of light soil, make all smooth and firm, and sow thickly, just covering the seed with a sprinkling of sand, or a little fine earth sifted over them. Cover the beds either with mats or frames, give plenty of air whenever the weather permits, but keep out frost. As soon as the plants are up, thin them out to two inches apart, which leaves sufficient room for them to swell to a fair size. Whenever they require water, it must be administered moderately, and in a tepid state. An early crop may be obtained in the open ground by sowing on a sloping bed in a well protected spot facing the south, about the middle of February. The same sort may be chosen; the ground should be light and rich, and as soon as the seed is sown, cover it with pea haulm or litter to keep out frost, but in fine weather remove the covering, placing it on again at night. By careful attention, a very fine gathering may be had in May.

The main crop of carrots in the open ground, should never be sown till the middle of March, in the warmest districts in London, and northwards it is best to defer it till the first week in April, for it is rather a tender crop. The ground should have been well prepared and the surface brought to a fine condition, and marked into four-feet beds, with one-foot alleys between. Choose a fine calm day for sowing, rake the bed over, and sprinkle the seed either broadcast or in drills—the latter being preferable because the crop can be kept cleaner. Most people rub the seeds with a little sand or coal-ashes, to separate it, but with a little care in the handling this is not at all necessary. Horn carrots should be in drills eight inches apart, and the large growing sorts ten inches. As soon as the plants are up and strong enough to handle, thin them out to four or five inches apart, or if you want a crop of large carrots, and do not intend to draw any young, thin at once to eight or ten inches apart, but it is better to leave them a little closer than that at the first thinning. The ground should then be hoed over with an onion hoe, to destroy weeds, and this must be repeated till the crop spreads over and clears the ground itself. During wet weather, when the plants have got pretty forward, they may have a final thinning, and the thinnings will be useful indoors. When the tops begin to suffer from night frosts, take up the crop on a dry day, cut the tops off, and store away the roots in dry sand, and they will keep good till early carrots come in to take their place. To obtain young carrots in autumn, make a sowing in May, and another in July, and if these are not drawn in autumn, they may be kept in the ground all the winter with a little care. During frost cover them with mats or litter, but if the frost is very severe, the whole may be lost, so that winter carrots are not to be classed among the most certain of crops.

For garden culture nothing beats the Long Surrey for colour and shape,

but if you would have a hardy crop of immense roots, use the Altringham green top, the flavour of which is excellent, but its shape is not always very regular. As the tops rise out of the ground, earth them up, and thus save the waste which a green top necessitates. I should recommend this sort to every grower who aims at quantity combined with excellence, but where handsome roots are required, take Surrey, or James's. For allotment purposes, the white Belgian is very useful, and will always command a market as cattle feed.

The parsnip is one of the most accommodating of roots, and hence, in cottage gardens it is often subjected to very bad treatment. This is just the sort of crop on which a poor man should bestow his best energies, for its wholesome, nutritive, and palatable properties render it one of the best additions to the table that the garden has to offer. Like the carrot, it requires a deep light soil, free from stones, and thoroughly pulverised by exposure to frost. On gravel or clay it does but poorly, but it will produce a fair crop on very poor soil, and will even prosper under the shade of trees. One of the many errors prevalent in its cultivation by cottagers, is the practice of sowing broadcast, and very thick. The seed should always be sown in drills, not less than ten inches apart and in rich soil, or one that has had a good layer of manure at the bottom of the second spit; they should be twelve inches apart, and will pay much better than if crowded. It cannot have too open a situation, or too rich a soil, provided there is no fresh manure in it.

Sow from the middle of February to the end of March. After the first week in April is too late to do justice to it, but the seed may be sown as late as the first week in May, and still produce a crop worth harvesting. In Guernsey, where they grow the parsnip better than anywhere else in the world, January is the general sowing season, and in field culture the seed is often put in in September, and makes enormous roots by the next autumn, but in gardens they are apt to bolt in spring if sowed the previous autumn.

The beds should be four feet wide. Sow in drills half an inch deep; when the seedlings are large enough to handle, thin them out to ten inches apart, and keep the ground clear of weeds by handpicking and hoeing. An occasional looking over the beds will be necessary, for seeds that have lain dormant will spring up late in the season, and must be pulled out, and after a period of dry weather the ground will get caked, so that rain will hardly find its way to their roots. For this reason it is best to seize the last opportunity, just before the leaves meet across and prevent such an operation, to loosen the top soil between the rows, and Gidney's Drill hoe will be the best tool for the purpose. Send the point down as deep as you can, and loosen the surface well about them without going so near the roots as to injure them. The first shower afterwards will go clean down, and you will literally *see* them grow for the remainder of the season. There is not much choice of sorts; the hollow crowned is that most in use, and is unexceptionable for shape and flavour. The Guernsey come to a larger size and are excellent roots, and perhaps, better than the other for allotments.

Turnips are frequently a cause of disappointment in small gardens, but where there is a good open space, there is not a more useful or profitable crop. They do not require a rich soil, and will come well without manure on land that was manured for the previous crop; at the same time heavy manuring may be practised to advantage. They are hardy things; they follow nicely on the heels of summer things, such as potatoes, peas, &c., and may be sown at almost any season of the year. The use of liquid manure is strikingly exemplified in the culture of turnips, and on small farms—where improvements are not as rapid as they should be—it would always pay well to give the ground a good soaking with liquid manure, and then sow Swedes at once. They would only want hoeing and thinning afterwards, so as to leave them finally at nine or ten inches apart, and a heavy crop would be certain—liquid manure renders this crop additionally profitable, and it is one that exhausts the land as little as any.

In garden culture, the first sowings may be made in February, either on a warm border or on a gentle hot-bed, and they will come in for use during April. Early white Dutch and early stone are the best for this purpose. After the first of March, they may be sown at any time till the end of September. But for the winter supply, which is the most important, because the wether legs are then prime for them, a good breadth should be sown at the end of July, and if possible another at the end of August. These will come in during winter and early spring, and furnish greens as well as bulbs, at a time when both are prized. For all general purposes the common white, large round white, and early stone are the best, but for allotment culture, Swedes are the most profitable, and most generally useful, especially where there is a little live stock to be thought of. It is best to sow turnips in drills, dropping a few seeds along the drill twelve inches apart, but they do very well broadcast, and should be sown thinly, just after rain. When the plants have three or four leaves each, thin them out to ten or twelve inches asunder, and give the ground one good hoeing through. After that, the turnips will spread and choke all weeds and need little further attention, except during drought, when they should have plenty of water or liquid manure. Just before Christmas, it is as well to take up a lot of the best bulbs, remove the tops, and store them in sand, though if the winter is not very severe, they will fight it out in the open ground.

Since turnip-greens are much valued as a spring vegetable, I would suggest the use of Swedes in gardens expressly for the purpose, for the green tops are more sweet and tender than any of the other kinds. Early in December, get some of the largest bulbs, and on a piece of rich mellow soil, draw drills a foot apart, pack the Swedes close together along the drills and soil them over with ashes six inches deep. They will sprout through the ashes, and may then be cut off close to the bulb; the ashes being clean, are easily removed for that purpose, and any uncovered and not cut, must be covered over again. This plan will give you a supply of the most delicate vegetable you can eat from the end of January to the end of March, especially if some were got in a month or six weeks earlier, expressly for a first crop. Ordinary turnip-greens give no idea of the delicacy of these blanched stems, which are equal to asparagus, and among the most timely of things at a season when greens are scarce.

THE CITY OF LONDON FLOWER SHOW.

The beautiful garden in the Temple is now attracting hundreds of the lovers and cultivators of flowers, to take note of Mr. Broome's chrysanthemums. These gardens have for some years past had an annual display of chrysanthemums not to be equalled in any other part of England, and the chrysanthemum owes much of its fame, as a town flower, to what Mr. Broome has done for it at the Temple. From the middle of October to near Christmas, this garden is considered one of the sights of London; and a curious sight it is, too, for it is a flower show in the open borders of nearly two hundred feet long and six feet wide, containing therein plants loaded with blooms as large as dahlias, and of every colour except blue and scarlet. Besides these, there are from thirty to forty beds of pompone varieties, and with such success as proves the chrysanthemum to be a first-rate bedding-plant, pegged down, like verbenas. For other purposes of decoration, there are about two hundred potted plants, some measuring twelve feet in circumference, and one foot high, in pots only eight or ten inches wide. These complete the display, and make it more novel and interesting; in fact, our City garden may challenge all England in November, and have no fear of being outdone by either town or country. This year, the chrysanthemums bid fair to surpass all former seasons, and the plants will be in their prime about the 1st of the month, from which, to about the 20th, will be the best time for strangers to visit it. Mr. Broome, the gardener, feels a pleasure in giving information to any one wishing to grow this best of London flowers; and if those who "do up" and tidivate our London squares were to take a lesson from him, it might end in making those places a little more cheerful than they are. There is nothing to prevent them but want of spirit in both gardeners and proprietors. Seeing what Mr. Potter has done for some of the City graveyards, we hope to see City gardening prosper in that direction also, and this is the season for churchwardens to wake up and be doing.—*City Press.*

CULTURE AND TRAINING OF THE GOOSEBERRY.

BY SHIRLEY HIBBERD.

The gooseberry is one of those useful hardy fruits in which everyone possessing a garden has a genuine interest. It does not often meet with the treatment it deserves at the hands of cottagers, or even of experienced gardeners, for it will bear an immense deal of rough usage, and still yield good crops of fruit, and yet, between the produce and the appearance of well and ill-managed gooseberry-bushes the difference is as great as in any subject within the range of ordinary gardening.

The gooseberry requires a generous soil of good texture; though hardy, it likes moderate shelter, and it never does well, either in a dry hungry sand or in a soil too retentive of moisture. In undrained land, the bark gets hard, the sap is arrested, and the plant soon ceases to be profitable, and in exhausted ground, it fruits badly, and gives but a wretched crop. A deep sandy loam, well manured and mulched during the growing period, is that in which it does best, but the character of the soil is not so important, if the sub-soil is dry, and the surface regularly dressed with manure. From April to August, gooseberry trees prosper, if frequently refreshed with liquid manure, and there is nothing better for the purpose than house sewage sufficiently diluted, poured in temporary trenches cut between the rows for the purpose, and kept covered with grass mowings. When so fed, the berries increase in size considerably, and the trees make strong shoots and set an abundance of bloom-buds. An excess of wood shoots, however, is detrimental to the future welfare of the trees; a forest of green spray, choking up the centre, not only interferes with the formation of fruit-buds, but is an indication of too gross a luxuriance; and root-pruning or lifting the trees should be had recourse to, as well as a careful thinning out to the base, of every superfluous growth. Let us take the several stages of culture briefly, from the present time of year.

This is the season to plant bushes from the nursery, and also to put in cuttings for increase. The Lancashire growers, who are masters of this fruit, plant their bushes in rows, five feet apart every way, but strong growing sorts in compartments may have a space of even six feet from stem to stem, and will be all the more profitable, through enjoying a good circulation of air and affording the cultivator room to move between them, for top-dressing the soil, pruning, &c. To grow really fine fruit, they should be treated orchard fashion, that is, grown apart from other crops, so that their roots may run far and wide, in no danger of being occasionally chopped through with the spade. But many have no other place for them than the borders of kitchen plots, and they generally do well there with fair treatment, and they are within reach from the walks for gathering the fruit. To propagate the gooseberry either from seed or cuttings, is the simplest operation possible. Select from the best plants, strong healthy young shoots, cut them clean away to the base; then cut them back from the top to a foot or fifteen inches each, preserving the stronger part of the shoot for planting. Cut the base of the canes square across—never plant any fruit-canes with slanting heels—and remove with the knife every bud from the base to within two inches of the top. If the cuttings are fifteen inches long and four buds are left at top, the future stem will be a foot high, which will allow of the formation of a neat and useful tree. The removal of the lower buds is to secure a clean stem and prevent the formation of suckers. These are to be planted in close rows four inches deep in any moderately good soil, and at once trodden firm, and during summer kept clean and moderately moist. During summer young growing shoots strike readily in a shady border under a hand-glass, and a season may be saved by striking gooseberry and currant trees early in the season. The first season's growth of the cuttings put in in autumn, should be very little interfered with, but to avoid the use of the knife as much as possible—and it is used too much everywhere—rub off

any buds that show themselves in positions where branches are not required; or if ill-placed shoots make their appearance, pinch them out while they are young, to throw the whole strength of the tree into those which are to form the basis of a well-shaped head. A little care, in the first instance, will secure a handsome and regular natural

growth. At the end of the season, cut back all the leading shoots to two-thirds of their length, to cause them to break the next spring, and form well-shaped bushes. After that they will require little pruning; and for all established and bearing trees the knife should scarcely be used at all. Wherever an ill-placed shoot appears, pinch

it out at once with the finger and thumb; never let any unnecessary growth proceed so far as to the ripening of wood that must be cut away; and when the knife must be used, let there be no compromise. Unfruitful, ill-placed branches and shoots that crowd each other should be cut clean away to the base, and every good shoot should be slightly shortened to keep the tree to regular dimensions, and remove the weakest of its growths. Wherever gooseberry trees are cut and hacked, without judgment, they cease to be productive. If you grow for profit, encourage fruit spurs by using the knife sparingly, merely preserving a proper distance from branch to branch, and shortening in the weakest; but, if you grow for exhibition, adopt the opposite method, aud encourage

young wood, which produces few but larger berries; in which case you must also feed liberally by forking in rotten dung, and giving plenty of water.

The gooseberry being a fancy fruit, growers adopt various methods of training; and these methods are to be commended for the neatness they give the trees, to those who grow them merely for the table and the kitchen. A row of well-shaped trees is a pretty sight, and tells of the artist; but a lot

of mop-heads, choked in the centre, and smothered with suckers, proclaims the sloven, and the sloven never finds a profit in his work. Training on a south wall is a good method to secure an early supply of fruit, and to grow a row not trained under a wall or fence with a north aspect is a good plan to secure fruit very late in the season. The shade of trees, also, re-

tards, and, in late springs, shaded bushes sometimes set the best crops; but, as a rule, the gooseberry delights in free air and sunshine. Every method of training and pruning should have one leading object,—namely, to keep the centre of the tree well open. If treated from the first so as to cause the regular production of branches, and all spray from the centre kept in check, and the largest of the branches merely shortened back to good buds at the winter pruning, the trees will be handsome and strong, and hold their fruit sufficiently high above ground, to prevent it being soiled by rains. If grown with a clear stem, three or four feet high, the branches may be trained down all round, so as to weep, and the trees are then very pretty objects. But when they have short legs, the tendency of the branches to grow downward requires correction, and they may be trained upright on hoops. The hoops should be of hazel-wood, and the shoots must be trained out to the circumference of one of them from the first, and then brought over the hoop, and carried straight up to a second one, and regularly tied in as necessary. The growth must be kept entirely outside; no spray must be allowed to fill up the centre, which is required to be open for the full admission of sunshine to every branch. This plan of training ensures clean, well-ripened fruit, and the trees are most completely under the control of the cultivator. The Lancashire growers train their bushes out on the plan of a table-trellis, so as to expose a large, horizontal surface to the sun. For this purpose they use forked and hooked sticks, the first to support the shoots that droop too low, and the second to pull down those that take an opposite direction. Their bushes are generally low, and cover a great breadth of surface. This horizontal mode of training may also be adopted in connection with one large hoop, supported by a few strong stakes. The habits of the several varieties must, to some extent, determine the mode of both training and pruning them. The Warrington is of a drooping habit, and the Champagne very upright; and the same course of treatment must not be applied to them indiscriminately.

In regard to the selection of sorts, the best of the old varieties still hold their ground. There are none equal to the Champagne for flavour, and it is the best yellow gooseberry for all ordinary purposes. The Red Champagne is of the same quality, differing only in colour. The Old Rough is the best for preserving, and Warrington is unequalled as a profitable late gooseberry. For early work, take Golden Drop, Ostrich, and Early Green Hairy. For the latest crop, and for retarding, the best are Warrington, white; Viper, yellow; Pitmaston, green; and Coe's Late Red. The most profitable sorts are Keen's Seedling, and Warrington, red; Globe, and Husbandman, yellow; Profit and Glenton, green; Eagle, and Wellington Glory, white. For large exhibition berries, the following are a few of the best established sorts:—*Red:* Companion, Slaughterman, Conquering Hero, Dan's Mistake. *Yellow:* Leader, Leveller, Goldfinder, Peru, Catherina. *Green:* Thumper, Gretna Green, Rough Green, General, Turnout. *White:* Snowdrop, Antagonist, Lady Leicester. At the last Manchester Gooseberry Show, the following were the awards, with the weights of the berries in the several classes: Seedling of any colour, first prize to Mr. Walton's *Leviathan* (yellow) 26 dwts. 1 gr. *Red;* first, Mr. Etchell's *Major Hibbert*, 25 dwts. 23 grs.; second, Mr. Biddulph's *Try it Again*, 22 dwts.; third, Mr. Barker's *Heathcote*, 20 dwts. 18 grs.; fourth, Mr. Walton's *Plough Boy*, 20 dwts. 6 grs.; fifth, Mr. Maddox's *Lungeous*, 19 dwts. 13 grs. *Yellow:* first, Mr. Far's *Weenlee*, 20 dwts. 14 grs.; second, Mr. Lancashire's *Butcher*, 19 dwts. 20 grs.; third, Mr. Chapman's *High Sheriff;* fourth, Mr. Henshall's *California*, 19 dwts. 22 grs.; fifth, Mr. Leicester's *Pet*, 17 dwts. 13 grs. *Green:* first, Mr. Whittaker's *Horse Pool*, 20 dwts. 9 grs.; second, Mr. Wilson's *Let it*, 19 dwts. 15 grs.; third, Mr. Moscroft's *Miss Reed*, 18 dwts. 20 grs.; fourth, Mr. Rhodes's *Galloper*, 18 dwts. 15 grs.; fifth, Mr. Dennis's *Charley*, 17 dwts. 10 grs. *White:* first, Mr.

Walton's *Terror*, 23 dwts.; second, Mr. Amson's *Alice*, 21 dwts. 22 grs.; third, Mr. Walton's *Eva*; fourth, Mr. Wilkinson's *Overseer*, 19 dwts. 1 gr.; fifth, Mr. Beckett's *Cotton Hall*, 20 dwts. 12 grs.

WINTER CULTURE OF THE CUCUMBER.

I DEFY any one to grow cucumbers well in winter by such make-shift methods as we can adopt at other seasons, and my own experience with dung-pits and flues, has taught me that, unless the grower has a really efficient system of heating, on which he can depend, and with the management of which he is quite familiar, the task is one beset with difficulties and vexations. It was after being fully satisfied that dung-heating for this purpose was a clumsy and uncertain method, that I adopted the hot-water system, which has more than answered my expectations, as I stated last month, in describing the house in which I now grow them. Before I briefly describe my practice, a few words of a general kind may be useful to the reader. The cucumber likes heat, moisture, and a rich soil—sunshine it can do without, but it must have fair daylight. They do best with a pretty constant bottom heat of 70 degs., which may be allowed to rise to 80 degs. when the plants are in full vigour. The air heat should average 75 degs.; it may rise to 85 degs. on a sunshiny day, and never sink below 65 degs. on the coldest night. The water given should be quite warm, not less than 70 degs., and one great cause of failure with inexperienced hands, is chilling the roots, by giving the water too cold. It is best to use the thermometer again and again, until such experience is acquired as to remove the practice out of the region of guess work.

For the winter crop, I prefer to take cuttings from the best plants in September and October. The cuttings should be six inches long, plump and healthy, and they strike in two days, if put into a brisk bottom heat, planted in pots, three parts filled with dry turf, chopped small, with the addition of a little sand, and powdered charcoal. These are planted out as soon as they have made good roots—say a fortnight after making the cuttings—and they bear well at Christmas. If raised from seed, the sowings should be made—one early in August, and another at the end of September. The first will fruit before Christmas, and, at the turn of the year, will be full of vigour; the second will begin to bear about the end of February, and be in their prime in March. To cut fine fruit on Christmas-day, the plants ought to be in bearing by the 1st of December, and if you delay the sowing beyond the middle of August, you cannot make sure of fine fruit at Christmas, with the most perfect management, though I have often had a good crop at that time, from plants sown in the middle of September.

I always raise cucumber plants in pots. Never sow the seed where the plants are to remain, not even for ridges in the open ground. In planting out in the bed over the tank, one precaution of great moment is, to use only a little soil at a time, just enough for the roots to work in freely; if the bed was made up at first, a good deal of the soil would sour before the roots got into it, and then the vines would languish. The soil should be a fresh loam, well chopped up, and quite mellow. Having abundance of an unctuous yellow loam, we generally chop up with it, about a third part of the soil from an old turf stack, and in this mixture the cucumbers thrive amazingly. Having raised a little hillock for each plant, and made the top of each the same level as the whole bed is to be ultimately, we knock the bottoms clean out of a few forty-eight pots, and press them firmly into the centre of the hillock, rim downwards, and with, consequently, the open bottom upwards. The seedlings are then carefully turned out of their small pots, into the inverted forty-eights, dressed up neatly, and without injury to the tender roots, and the circular orifice round the collar of the plant covered with a few pieces of tile or slate. It is astonishing what an improvement this plan is over planting in a made-up bed. The plants soon take hold of the new soil, and extend their roots till they touch the sides of the pots, and then go down into the base of the hillock, and, in a short time, require an addition of soil. To prevent the growth of fungi, or the caking of the soil, the hillocks are stirred lightly every few days, and every time earth is added. The inverted pots are, of course, ultimately buried by the additions of soil around them, but they still continue to protect the roots, and give support to the plant at the collar. In watering and pruning, they are also of use, as a protection against injury.

The plants are trained up a trellis about 15 inches from the glass. To get the trellis covered quickly, we take up the leading shoots to within a trifle of the top, before we stop them, and thereby we secure better

bearing wood than if they were stopped at an earlier stage, for every stopping of a plant is a check to it. When the laterals break, they are thinned if requisite, and trained out regularly upwards, and when they have grown about half way to the top, they are stopped, and the new shoots trained in laterally. Every one of these laterals that does not show fruit at the second leaf from the main branch, is stopped again, and the process repeated until fruit appears. The upper part of the trellis has, of course, the same kind of treatment. When fruit-blossoms appear, no more stopping of that branch takes place till the fruit is well set, then I stop at the next joint beyond the fruit, and this stopping causes it to swell. The removal of the leaf beyond the joint would cause the fruit to fail. This is an important point, and applies to the summer pruning of the grape vine, after precisely the same rule. It is the leaf that keeps the fruit supplied with sap, for its growth and maturation. Whenever a branch begins to fail in bearing, it is cut clean away, and new branches trained out to take its place. All the pruning on this principle, except the removal of an exhausted branch, is done with the thumb-nail; if the growth goes so far as to render a knife necessary, then the grower has done an injustice to the plant.

One other matter is of importance. The bed or the tank is divided into compartments, by means of slates on edge, and this allows of the removal of a plant, and the soil it has grown in, without the least disturbance to any of the rest.

An Old Gardener.

NOVEMBER WORK IN GARDEN AND GREENHOUSE.

Those who intend to enjoy the sight of well-bloomed beds of bulbous plants must now set to work in earnest, and get every bulb into the ground. The more they shoot while kept dry, the more are their energies exhausted; and if the blooms are not deteriorated—as they are pretty sure to be—the bulbs themselves will be weakened, and will be poor the next year. Lord Mayor's Day is the day for planting tulips with the majority of London growers; in Lancashire they are a little earlier. The remark about planting applies also to purchasing. The best are sold first; as the season wanes, the dealers have only the leavings of others, who were on the look out in time, and who had the pick on the first arrival of the bulbs. Add to this the uncertainty of the weather at this time of year, and there are three good reasons for attending to the bulbs at once, even to the neglect, for a week or two, of other matters. Planting is now going on in all directions. In this work delays are dangerous. Trees got into their quarters at once, even if they have not quite shed their leaves, will at once make fresh root, for the ground is warm, and get well established before severe frosts set in. Order at once whatever fruit trees, roses, &c., you may require, and have the ground prepared, so that they may be planted immediately on arrival. Laying in by the heels is a mischievous practice, and should never be resorted to, except when unavoidable. It is better, however, for trees to lay in than lay out; the air acting on their exposed roots does immense injury; but the danger of laying in is that, regarding them as "safe for the present," the planting is often deferred till they have actually struck out roots; and lifting them to their places destroys the new roots, and compels them to a second effort when planted. In some districts there have been sharp frosts, and, in the north, two falls of snow. We saw dahlias and scarlet runners cut off to the ground on the 15th of last month, five miles from London; at Stoke Newington and in the southern and western suburbs, however, bedding-plants were safe on the 26th, and dahlias and autumn roses still loaded with bloom. The further safety of such things, however, cannot be depended on for a single day, and whatever requires preservation should be got under glass without delay. Chrysanthemums are in very fine condition this year, and the season will close gaily.

Kitchen Garden.—Wherever digging and trenching are required, let it be done without delay; every additional day's exposure of the soil to the action of the weather, is a benefit to it; generally speaking, it is not well to manure in autumn, because the winter rains wash the best of it away, but manures should have attention, and this is a good time to clear out the muck pit, and pile the stuff in a heap, and throw over it few inches of soil or burnt

clay. In dry frosty weather, it should be chopped down and turned, and again soiled over to preserve its virtues, and at the same time sweeten it for use. Turf should be stacked, and clippings collected for burning to make dressings of manure for beds and borders. The general work of the kitchen garden is but a continuation of last month, to which we refer to avoid repetitions. Those who are inclined to venture a few speculative crops, should sow Mazagan beans, and Sangster's Number One, and Early Emperor peas. If they get through the winter, they will produce a few early dishes, but there is the risk, not only of severe weather, but of the attacks of slugs and snails, and where these vermin are allowed to riot on the ground, winter sowings have little chance.

Fruit Garden.—Prune and plant as weather permits. Give special attention to wall fruit, and where standards have got crowded, thin out the heads, but be very cautious about cutting large boughs off healthy bearing trees. Bush fruits should be pruned, and the ground forked over between the rows. Burn the prunings and strew the ashes over the newly forked surface. Red and white currants must be cut back to skeletons; the chief of the fruit-buds being at the junctions of the new wood with that of last year; leave only three or four joints beyond that point, and cut clear away at the base every branch that is ill-placed or that chokes up the centre. Black currants do not like the knife. Trim the branches to regular distances, and shorten the longest back to good joints, but preserve plenty of young wood, leaving the plumpest branches nearly their full length, and cutting all weak ones clean away. Treat gooseberries in the same way; they never bear well if severely pruned

Flower Garden.—Whatever is of too tender a nature to bear exposure to frost, should be got under cover without delay. Choice pansies, carnations, auriculas, and phloxes require the shelter of a frame or cold pit. Dahlias should be taken up, tallied, and stowed away out of the reach of frost, moisture, and heat. Get a supply of rose-stocks at once if you intend to graft or bud for yourself next season. Plant in good loam, and stake them securely, or run light hazel rods along the rows, and secure their ends to stout uprights, and tie in the stocks to them. Bulbs should be planted as soon as possible, both in beds and borders. Cheap mixtures of hyacinths and tulips serve every purpose for general decoration of the borders, and the dealers will make good selections for those who are not familiar with the properties of the several sorts.

Tulips in beds are planted in seven rows, six inches apart, giving four feet for the width of the beds, and of any length that may be desired. Mr. Glenny has made an improvement on the old method of arranging the bulbs; his method produces a series of repeats, which we much admire, and recommend accordingly—it is managed thus:—

Rose.	Byb.	Biz.	Rose.	Biz.	Byb.	Rose.
Byb.	Biz.	Rose.	Byb.	Rose.	Biz.	Byb.
Biz.	Rose.	Byb.	Biz.	Byb.	Rose.	Biz.
Rose	Byb.	Biz.	Rose.	Biz.	Byb.	Rose.

Amateurs purposing to begin tulip culture, as well as growers who wish to improve their collections, should write to Mr. Lawrence, of Hampton, Middlesex, for his catalogue, which includes the best flowers of the three kingdoms. Dealers in tulips will always select and arrange a bed, on order, to meet the amount the purchaser may be disposed to pay for it. A bed of sixty rows, containing most of the standard varieties, properly arranged as to heights, will cost fifteen pounds; but good named tulips may be had from five to seven pounds per hundred. Purchasers of hyacinths, crocuses, &c., will find much instruction in the catalogues of Mr. Cutbush, of Highgate, and Messrs. Henderson, of St. John's Wood.

Well rolled turf and gravel, and trimly kept borders are very necessary, now that the colours are declining, and the garden is resuming a skeleton condition in which outlines and surfaces are nearly all that remain to give pleasure to the eye. In selecting evergreens and deciduous shrubs for decorative purposes, the colours of their foliage at this season, should be taken into consideration.

Greenhouse.—There is great danger of overcrowding the plants newly housed, owing to the numbers that are propagated during summer. It would be better even to destroy surplus stock, than to spoil a whole collection, by cramming too many plants into a limited space. Give plenty of air, but guard against sudden night frosts. Withhold water as much as possible, to induce a state of rest in the plants, but allow nothing to get dust-dry, for that is an injury to the tender roots, on which the plant has to depend in a great measure to sustain itself. The first frost is generally severe; if, by accident, any plants get caught by it, keep them shaded, and occasionally sprinkled with cold water, but remove the shade as soon as they show signs of recovery. Plants in bloom should be kept safe from cold nights, and whenever watered it should be with tepid water. Green-fly is very apt to attack soft-wooded plants at this season, and the moment the pest appears, tobacco-smoke must be resorted to. Keep up the heat among pines, but give as much air as possible. Do not push any into undue growth, or they will suffer severely on the accession of colder weather. Be on your guard to shut up houses where vines are breaking, as if frost gets in among the opening buds, it will do immense mischief.

RECENT EXHIBITIONS

Our notes on exhibitions last month were unusually brief, owing to our desire to include in the number several important articles, which would have been of less value to our readers if their publication had been deferred. Though we had prepared ample notes of various shows we had attended, we thought it advisable to withhold them, in order to make room for matters which appeared to us of more momentary interest, and we proceed now to fetch up our arrears. In regard to the Dahlia show, we may remark that the late period at which it took place proved inconvenient to our contemporaries as well as ourselves—it was too late in the week for the weekly journals, and too late in the month for the monthlies, so that the *Cottage Gardener* and the *Chronicle* were compelled to defer their reports beyond their current issues, and the *Florist* in like manner, did as we have done, glanced at it only, and noted down but a few leading impressions. With the exception of the September Exhibition at the Crystal Palace, we have now to record briefly the exhibitional transactions of the past two months:—

Stamford, *September* 8th.—This was the concluding show of the season, and was held in a field called "The Nuns," kindly granted by W. Higgs, Esq., from whence there is a fine view of the pretty town of Stamford. Five commodious tents were occupied by the competitors, the classification being as follows:—1. Plants in pots, exhibited by dealers and first-class amateurs. 2. Cut flowers, open to the same classes. 3. Fruit and vegetables, shown by the same. 4. Plants, cut flowers, fruit, and vegetables, exhibited by second-class amateurs. 5. Cottagers' produce. An elevated platform, surrounded with seats, erected midway between the tents and the boundary of the field next the railway, was appropriated to the regimental band, consisting of twenty performers, under the able leadership of Mr. Waddell. Of fuchsias, a variety of well grown plants were exhibited by the Marchioness of Exeter (who obtained the first prize), by J. Phillips, Esq., and by Mr. Almey, of Oakham; Lady Exeter also sent a number of beautiful geraniums. Mr. Phillips was awarded the first premium for achiminies and verbenas; the latter, however, were not equal to those shown at the July meeting. Very superior balsams were contributed by Messrs. Wood and Ingram, and T. H. Jackson, Esq.; but there was nothing more showy than the array of cockscombs exhibited by Capt. Grantham, Mr. Phillips, Mr. Baker, and Mr. Almey. An interesting variety of ferns sent by Mr. Huggins, of Boston, and four very handsome agapanthus lilies, shown by Miss Hurst, completed the attractions of this tent. In tent No. 2 there was a brilliant collection of cut flowers, and especially of dahlias, which were in beautiful bloom and received well merited admiration: the chief competitors were Mr. Burberry, of Kenilworth; Messrs. Wood and Ingram, of Huntingdon; Mr. Holmes, of Nottingham; Mr. Walker, of Leicester; Messrs. Paul, of Cheshunt; Mr. Edwards, and Mr. Draycott. There was also a splendid assortment of hollyhocks and asters, grown by Mr. Burberry, Mr. Almey, and Messrs. Paul. One of the most attractive objects of this tent was a device by Mr. Thomas Almey, consisting of a miniature flower garden, beautifully laid out, with the addition of a fountain and rockwork covered with mosses of various kinds, ferns, &c.: this obtained, as it deserved, the first prize. The second prize in this class was awarded to Mr. Dean, of Uppington, for a tastefully-constructed floral device somewhat in the form of a temple. The Marquis of Exeter carried off the first prize for the best collection of fruit, Mr. Baker the second, and J. M. Wingfield, Esq., an extra prize: the whole of these were worthy of high commendation. The noble Marquis also showed the best pines; Mr. Cornutt taking the second place. Mr. Phillips gained the first premium for white out-door grapes, the second being awarded to Mr. H. Tebbutt. Perhaps finer peaches were never seen than those exhibited by the Hon. Mrs. Watson, of Rockingham Castle, to whom was given the first prize; T. H. Jackson, Esq., of Stamford, occupying the second place. J. M. Wingfield, Esq., took the first prize with a magnificent dish of plums; the second was awarded to the Marquis of Exeter. There was a choice display of dessert apples, for which the chief prize fell to the lot of the Marquis of Exeter. MissHurst and Mr. Baker took the first prize for melons, the former with the green flesh and the latter with the scarlet flesh variety. Turning to the vegetables, we must say that we have seldom, if ever, seen a better collection. The potatoes of all kinds seemed to be in particularly fine condition; the chief prizes for this important root being won by J. M. Wingfield and T. H. Jackson, Esqs. Very good samples were also shown by Miss Hurst and Capt. Grantham. J. M. Wingfield, Esq., took the first prize for the best basket of vegetables, and also for the best basket of salad; Mr. Cornutt and Mr. Phillips respectively occupying the second

places. The whole of these were highly creditable to the growers. Mr. Draycott was the successful competitor in cucumbers; J. M. Wingfield, Esq., in celery, onions, and parsnips; and T. H. Jackson, Esq., in carrots; all of which were good specimens of their respective classes. A prize was awarded to Mr. Thomas Laxton, for a Chinese yam, *Dioscorea battatas*. We also observed two very large peturian gourds, one of which weighed 80 lbs. In tent No. 4, occupied by second-class amateurs, the chief competitors were Mr. Thomas Laxton and Mr. Islip, who divided the majority of the prizes between them. Mr. Laxton's cucumbers were very fine, and so were Mr. Islip's potatoes. Mr. J. G. Desborough exhibited nine superb glasses of honey, one of which, worked in 21 days, weighed 16 lbs.: the display elicited general commendation, and gained for Mr. D. a silver medal. The tent No. 5, was devoted to cottagers' produce. There was a strong muster of competitors, who numbered nearly 50, exclusive of 20 juveniles who entered for the prize awarded for the best bouquet of wild flowers. The fruit and vegetables generally were highly creditable to the exhibitors.

About two thousand persons were admitted during the day. The judges were Mr. Roden, gardener to Lady Lindsey, Mr. Kidd, gardener to T. Tyron, Esq., Mr. Grey, of Bourn, and Mr. Perry, of Algarkirk.

Brighton, *September*, 15th and 16th.—This, the tenth show of the Brighton and Sussex Horticultural Society, was so eminently successful, that in the local prints it was reported as the "Comet" exhibition, and some humourous parallels instituted between it and the "Comet Vintage" of 1811, in France. The present surpassed all previous exhibitions of the Society, as much as the Comet—then blazing in the Heavens—surpassed for the time every other luminary in the firmament. The show was held as usual in the pavilion, and comprised two divisions, one for All England, and one for the locality. Among the great variety of truly excellent subjects exhibited, Dahlias certainly took the lead. The admiration of the growers was chiefly expended on the seedling dahlias exhibited in a tent on the lawn; those of Mr. Keynes, of Salisbury, were said to be the finest yet seen in England. Among the exhibitors were Mr. James Godley, gardener to F. Weekes, Esq., Bolney; Mr. H. Bailley, gardener to N. Borrer, Esq., Hurst; Mr. John Dennis, Mr. William Knight, John Sladen, Esq, Ash, near Sandwich; Mr. J. Miles, Mr. David Hutt, Mr. C. J. Perry, the Cedars Castle, Bromwich; Mr. Joseph James, Slade End, near Birmingham; Mr. Cook, Notting Hill; Mr. C. Bedwell, St. Ann's, Lewes; Mr. W. Dodds, Salisbury; Mr. C. Brown, Dulwich; Mr. William Ford, Mr. A Carter, the Rev. Charles Roe, Crystal Palace; Mr. Kimberley, Stoke Nursery, Coventry; Mr. W. R. Bragg, Mr. Henry Legge, Edmonton, Middlesex; and Mr. C. E. Allen, Stoke Newington.

The roses and cut flowers were superb. The chief rose-grower was Mr. Mitchell, of Piltdown, who carried off an extra prize of £3 for 100 varieties, exhibited on a marquee on the lawn. Mr. Mitchell, however, was not left alone in his glory; other growers entered into friendly competition with him, and, with successful results. The asters were quite a feature in this department; they were very numerous, and fine almost beyond comparison. Some excellent stove and greenhouse flowers were contributed by Mr. Atkins, Mr. O. Rhodes, gardener to J. Philpot, Esq., Stamford Hill; Mr. Cameron, gardener to the Duke of Richmond, Mr. G. Hudson, gardener to F. Barchard, Esq., and Mr. W. Hugget, gardener to Dr. Jeffery, Eastbourne.

Hollyhocks formed quite an exhibition in themselves; the exhibitors being Mr. Sidney Ford, gardener to W. E. Hubbard, Esq., Mr. Thomson, Shoreham; Mr. Chater, Saffron Walden, Essex; Messrs Paul and Son, Cheshunt; and Mr. W. R. Bragg, Slough.

There was a new feature in the form of prizes for begonias, and some beautiful specimens were exhibited. In the Music Room was a very attractive stand devoted to achimenes. The exhibitors were Mr. G. Lambert, gardener to S. Baring, Esq., Mr. J. Miles, gardener to S. Hannington, Esq., and Mr. W. Holman, gardener to the Earl of Chichester. Two specimens of the longiflora alba were very beautiful, especially Holman's.

This show has always been distinguished from all but the metropolitan exhibitions by the large number of stove and greenhouse plants displayed. Two entire platforms in the Music Room, and the greater portion of the Banquetting Room, were given up for their reception; and the effect was very striking. There were specimens of Cyrtoceras multiflora, Leptodactylon californica, Ixora coccinea, Rondeletia speciosa major, Fuchsioides acuminata. The principal contributors were Mr. J. Scougall, gardener to Dr. Madden, Mr. O. Rhodes, gardener to J. Philpot, Esq., Mr. T. Gilbert, gardener to E. L. McMurdo, Esq., Mr. G. Young, gardener to W. T. Stone, Esq., Mr. B. Peed, gardener to T. Treadwell, Esq., Mr. J. Miles, gardener to S. Hannington, Esq.; Mr. Atkins, gardener to Lord Gage, Messrs

Mitchell add Co., Bristol Gardens; Mr. George Parsons, Mr. S. Cameron, Mr. S. Hudson, Mr. W. Holman, and Mr. H. Smith, gardener to the Rev. T. R. Rooper, &c. To these we must add the names of Messrs Jackson, of Kingston, for variegated plants.

Occupying the place of honour in the Saloon, was a collection of orchids. The group was surmounted by a specimen of the Russellia juncea, presenting the appearance of a mass of green hair strung with crimson berries, exceedingly singular in its effect. The orchids were chiefly contributed by Mr. Cameron, Messrs Jackson, and Mr. A. Carter, gardener to—Kent, Esq. They were of all kinds; but perhaps the specimens of the Oncidium papilio major, the butterfly plant, attracted the most attention. Among the specimens were the delicate Cattleya crispa, Miltonia Clowesiana, Cattleya Harrisonii, Cattleya bicolor, &c. Messrs Jackson and Son exhibited a splendid Odontoglossum grande, Cypripedium barbatum superbum, Oncidium oblongatum, Vanda insignis, and Oncidium divaricatum.

The fuchsias were numerous; many of them gigantic in size, and dripping all over with beautiful blossom. Those in the saloon were particularly fine, and included—Souvenir de Chiswick, Miss Britton, Clapton Hero, Venus de Medici, Alice, Duchess of Lancaster, Snowball, Globosa magnificens, Prince Arthur, Autocrat, Venus de Medici, Banks's glory, Voltigeur, Imperatrice Eugenie, Princess of Prussia, Marquis of Bristol. Mr. Holman obtained the first prize for a collection. The display of grapes was unprecedented. There were eighteen boxes of 12lbs. each. At the Crystal Palace there were only eight boxes of 12lbs. each, and the most known at any flower show before is ten boxes. The other fruits were proportionately fine. From pine apples to pudding apples everything was in abundance and of superior quality.

National Dahlia Show, *Sept.* 23.—This was a great and glorious gathering, and its very exclusiveness and individuality increased its interest vastly. It consisted of dahlias, and dahlias only; and though, for general effect, the tables needed the embellishment which a few furnishing plants would have given them, the lover of the dahlia could not mourn their absence, when the stands of flowers presented an unbroken and unvaried diversity of colours. Looking down the tables, and taking in at one view the stands on either side, the effect was singular and striking, owing to the bold repetitions of decided colours and intermediate shades. Mr. Turner took the first place, not only for the grandeur of his flowers—and they were grand in every sense—but for his ingenious devices, and the peculiar impress of his own peculiar taste on the general *ensemble*. His Prince of Wales's Feather, of huge size, composed entirely of dahlia-blooms, mounted on a wood model, was really a work of art, and, compared with the absurd device loaded with incongruous colours on an adjoining table, showed the taste and discernment of a master. To the few remarks on the exhibition given last month, we now add the names of the principal winning flowers, as guides to those of our readers who take a special interest in dahlia culture. Mr. Turner, of Slough, took first prize to nurserymen, for 50 dissimilar blooms, with—Triomphe de Pecq, Admiral Dundas, Deutsche Würde, Lord Cardigan, Pre-eminent, Robert Bruce, Peerless, Flirt, Triomphe de Roubaix, Miss Watts, Touchstone, Annie Salter, Lord Bath, Princess, Princess Royal, Pandora, Elizabeth, Lady Franklin, Perfection, King, Lord Fielding, Mrs. Church, Village Gem, Royal Scarlet, Lady Popham, President, Commander, Satirist, Harbinger, Cherub, Rosa Bonheur, Lord Palmerston, Alice Downie, Sidney Herbert, Rachael Rawlings, Emperor, Orb of Day, Midnight, Major Fellowes, Goldfinder, Exhibitor, Lollipop, Conqueror, Hon. Mrs. Trotter, Grand Sultan, Miss Pressley, Mrs. Legge, Colonel Windham, Venus, Dr. Gully. The second prize was awarded to Mr. Keynes, of Salisbury; and the third to Mr. W. C. Drummond, of Bath. The first prize for 24 blooms was taken by Mr. C. Kimberley, of Stoke, Coventry; second, Mr. Legge, Edmonton; third, Mr. Bragg, of Slough. Mr. Turner was also first for 12 tipped fancies and 12 tipped and spotted fancies; Mr. Legge second for tipped flowers; and Mr. Kimberley second for striped and spotted. Mr. Turner's tipped flowers were Baron Alderson, Mrs. Hansard, Elizabeth, Countess of Bective, Jupiter, Duchess of Kent, Triomphe de Roubaix, Mrs. Kean, Empereur de Maroc, Duchesse de Brabant, Lady Paxton, Madame Alboni. The striped and spotted were Flirt, Carnation, Marc Antony, Oliver Twist, La Defie, Souter Johnny, Conqueror, Charles Perry, Gloire de Kain, Village Bride, Comet, Beauty of High Cross.

In the classes for amateurs the exhibitors were numerous, and the flowers generally good. The first prize for 24 blooms was awarded to the Rev. C. Fellowes, Shottisham Rectory, Norfolk; the sorts were Fanny Keynes, Sir J. Watts, Miss Pressley, Pre-eminent, Lady Popham, Lord Bath, Mrs. Church, Commander, Village Gem, Major Fellowes, Cherub, Emperor, Miss Caroline, Satirist, Enchantress, Lord Palmerston, Marian, Perfection, Rosa Bonheur, Triomphe

de Pecq, Eurydice, Venus, Rubens, Robert Bruce. In this same class G. Holmes, Esq, was second, and Mr. C. J. Perry third. In the class for 12 blooms Mr. H. Bush was first, and Mr. Hopkins second. For 12 fancies Mr. C. J. Perry was first, and Mr. Dodds second. Mr. Perry's fancies were Lady Paxton, Conqueror, Mrs. Bushell, Oliver Twist, Baron Alderson, Gloire de Kain, Marc Antony, Charles Perry, Comet, Triomphe de Roubaix, Papilio, Carnation. In the open classes, Mr. Turner took the prize for the best ornamental group of cut dahlias; the group consisted of an arrangement of flowers in a symmetrical disposition of colours along the whole front of the orchestra. Though at so late a period of the season, some very good hollyhocks were shown by Mr. Paul; among them we noticed Black Prince as being about the best in condition. Among the more remarkable dahlias, those enumerated above as the winning flowers may be generally referred to for the purpose of avoiding repetition. Among those of recent introduction, we may mention that Lord Palmerston (Turner) is superb in colour and outline, but, nevertheless, a dull flower; Midnight and Pre-eminent, two grand varieties, are very much alike; Lady Popham is exquisitely delicate, and a perfect model of form. Mr. Turner had some magnificent dark dahlias, among which Jupiter stood almost apart from the rest, in his grand proportions, and striking colours —dark crimson with white tips; Commander is another fine dark dahlia; Nigger and Negro are much alike, but Nigger is the nearest to black; Essex Triumph is a rich maroon black; Beauty of Hertford very dark, and exquisite shape and substance. Among the more cheerful colours we noted Brilliant, a dazzling lake, as very acceptable; as is also Baron Alderson, soft cerise, with white tips. Sir Robert Bruce and Sir James Watts are pretty much alike, and both good, and of a similar tone to Brilliant. Lord Fielding is about the lightest of the dark class. King and Lollipop are two good fawns; they were not shown so well as at Stoke Newington, on the 1st. The plants in pots cut a miserable figure, and what there was new among them was of little merit, and rarely equal in qualities to the names given them. Golden Ball might be called Yellow Pancake, and Pretty Polly exhibited as much ugliness as possible.

British Pomological, *Sept.* 4 *and* 23.—These meetings were well attended, and a considerable number of new members admitted at each. The Society's prize of two pounds for the best seedling hardy grape not having a muscat flavour was competed for, and the prize awarded to Mr. Ivery, of Dorking, for a variety called Buckland Sweetwater. This has been before the Society on two previous occasions, and has on each met with approbation. It is of the Hamburgh section, the branches medium sized, compact, well shouldered, the berries slightly amber colour when dead ripe, full size, regular and round, skin of medium thickness; flesh, sweet, melting; seeds very few, rarely more than one in a berry. It is a good setter, and altogether a most valuable addition to the class of hardy grapes, and well worthy the distinction given it by the Society. By an announcement in the *Garden Oracle*, we see that it is to be let out by Mr. Ivery in the ensuing season. Mr. Wighton exhibited his seedling black grape, which appears to be of high excellence; but this and Mr. Melville's seedling muscat grape were not definitely reported on, the Society wishing to see the fruit again, in order more fully to test their respective merits. Mr. Rivers brought a dish of Prolific Sweetwater, a long-branched white grape, of good flavour, and a free setter, worthy of general culture. Mr. Rivers also exhibited Chasselas Vibert, a grape of the Sweetwater section, a very early and hardy variety, ripening well on an open wall, or in a cool house. These, with Buckland Sweetwater and the Early Black July, also shown by Mr Rivers, were considered well suited to displace the old Sweetwater, which is a shy setter, and by no means equal to the demands of modern horticulture. Mr. C. W. Mounsdon sent a seedling melon from Munro's Green Flesh, hybridized with Golden Perfection. It is a strong grower, and a great bearer, the fruit ranging from two and a half pounds to five pounds in weight. Mr. Veitch, of Exeter, sent some seedling peaches, which were rather to be regarded as curiosities than suitable for ordinary culture. Mr. Rivers sent a seedling peach, which was a curiosity, being the produce of a clingstone, and the latest peach known; the seedling being a free-stone, and moderately early. It is a variety of good promise; the fruit juicy and sugary, and the tree producing large and ornamental flowers. Some other seedling peaches were exhibited, but no decision given as to their respective merits. The following seedling culinary apples were shown— St. George, similar to Manx Codlin, and of very upright habit, and hence suited for gardens of limited dimensions; Jolly Beggar, a strong grower and fair cropper, and an excellent baking apple; New Hawthornden, bakes and boils well, and less acid than Manx Codlin.

At the meeting of the 23rd, several varieties of grapes were shown, but none possessing any novelty or special merit.

The most interesting subjects were the following:—Bunches of Black Sweetwater grapes, ripened on a vine trained on a pole in the open air, from Mr. Rivers; Violette Hative peaches, ripened on a standard and in the open air, and of as good flavour as the same variety from a wall, from H. G. Bohn, Esq., of Twickenham; Noblesse peaches, from trees trained to stakes in the nursery quarters, well ripened, from Mr. Paul, of Cheshunt. Mr. Rivers exhibited several varieties of peaches, to show the retarding power of orchard houses built against hedges, which served as walls, instead of glass or woodwork, and which exposed the trees to a subdued current of air, and at the same time gave sufficient protection. Mr. Ingram, of Huntingdon, sent good examples of Stanwick nectarine, grown on a south-east wall, in a sandy loam over gravel. The fruit was in admirable condition. Apples and pears were shown in considerable variety, but there was nothing remarkable amongst them. Mr. Hogg reported on a variety called the American Codlin, that it possessed a brisk and agreeable acid, and was first-rate for culinary purposes. Mr. Rivers exhibited a hybrid between the blackberry and the raspberry, which partakes of the flavour of both; he also showed his Four Seasons' raspberry, in excellent condition. Mr. Underhill exhibited Sir Harry strawberry in all stages of growth, from bloom to ripe fruit. This has now taken its place as one of the best.

TO CORRESPONDENTS.

NEW GARDEN ALMANAC.

The "GARDEN ORACLE AND ECONOMIC YEAR BOOK FOR 1859," is the title of a new annual for the country house, the plan of which is different from other gardening almanacs, and the contents very comprehensive. As we are specially interested in it, we will abstain from comment on its merits, and content ourselves with stating that it contains a list of greenhouse plants in bloom for every day in the year, the names of the principal flowers which have won first and second prizes at the exhibitions of 1858; a copious selection of the best Flowers, fruits, and vegetables for large and small gardens; a descriptive list of new plants, and notices of the novelties to be sent out in 1859. A calendar of operations for garden and greenhouse; notes on poultry, bees, and household Economy, are the principal other subjects, to which is added a complete Census of England and Wales. As every edition of the last Census has long been out of print, this reproduction of so important a work in the pages of an almanac, is expected to prove acceptable to the public generally.

PLANT AND SEED EXCHANGES.

INDIAN SEEDS FOR DISTRIBUTION.—*F.A.S.* is so gratified at the warm response to her offer in the October number, that she offers a further parcel of Indian seeds on the terms stated at page 238. Correspondents will oblige by naming distinctly what they want; it is impossible for either ourselves or our correspondent, *F.A.S.*, to make *selections*, though some of our readers have written to desire it. As *F.A.S.* is not resident in Britain, some little time will elapse between the application and the reply. Last month's applications—about sixty in number—have all been answered, but three, for which the particular seeds were omitted. We have added notes and synonymes as before, and notes of interrogation to species we are unacquainted with, as named in the list:—

Solandra, double (stove evergreen).
Pitcairnia latifolia (stove herbaceous).
Princiana pulcherrima?
Agati grandiflora (stove evergreen).
Beaumontia grandiflora (stove twiner).
Ricinus communis, castor oil plant (half hardy annual).
Sida ovida (greenhouse evergreen).
Sida species *syn.* Cristaria and Abutilon (greenhouse evergreen).
Zea crispa (half hardy ornamental grass).
Argemone mexicana (hardy annual).
Alstonia Oleandrifolia (stove evergreen).
Barbarea hirsida (hardy herbaceous).
Inga bigerinna? (stove evergreen).
Cassia occidentalis (stove evergreen).
" tora? (stove evergreen).
" fistula (stove evergreen).
" alata (stove evergreen).
" glauca (stove evergreen).
" Sumatrana (stove evergreen)
" grandis (stove evergreen).
" purpurea (stove evergreen).
Clerodendron infortunatum (stove evergreen).
Indigofera tinctoria (stove evergreen).
Banhinia? ——?
Bixa orellana, Arnotta (stove evergreen).
Jatropha panduræfolia (stove evergreen).
" rosea (stove evergreen).
Acacia glauca (greenhouse tree).
" Arabica (stove tree).
Lawsonia inermis (stove tree).
Crotalaria sericea (stove or greenhouse evergreen).
Duranta acuminata (stove evergreen).
" ellisia (stove evergreen).
Casuarina muricata * (greenhouse evergreen).
Poinciana regia (stove evergreen).
Palicourea undata *syn.* Psychotria (stove evergreen).
Solanum coriaceum (stove evergreen).
Guazuma tomentosa (stove evergreen tree).
Holmskioldia sanguinea (stove evergreen).
Asclepias tuberosa (hardy tuberous rooted).
Sophora tomentosa (stove evergreen).
Bignonia chelonoides *syn.* Spathodea longiflora (stove evergreen tree).
Berrya amanomille?
Banhinia acuminata (stove evergreen).
Facca pinnatifida?
Lantana trifolia (stove evergreen).
Dalbergia sissoo (stove evergreen tree).
Tecoma stans (stove shrub).
Sterculia coccinea (stove evergreen).
Vitex trifolia (stove evergreen).
Inga tramætoxycon? (stove evergreen).
Ixora corymbifolia (stove evergreen shrub).

* This is a splendid conservatory tree, nearly hardy, and remarkable in its habit of growth.

Trigonella corniculata *syn.* Lotus Indicus (stove and greenhouse annual).
Eupatorium fœniculaceum (hardy herbaceous).
Michelia champaca (stove evergreen).
Cereus multangularis (greenhouse succulent).
Cæsalpinia coriaria? (stove evergreen).
Stachytarpheta mutabilis (stove evergreen).
" " orubica (stove biennial).
Jute seed.

CAMELLIAS, ETC., TO KEEP BACK.—*Clericus.*—You scarcely need fear your camellias opening too soon. They will even show colour, and yet stand still at this time of year if out of doors. Mind the frost does not nip them; give as little water as possible to the roots, but let the foliage be syringed occasionally. Merely turning a plant out of its pot without damaging a single fibre, and then replacing it, will give it a check sufficient to retard the blooming. If geraniums are too forward, cut them in moderately, and shift them into smaller pots, and shift again into blooming pots about the middle of December, or pinch out the points that show bloom, and pot them on to one size larger, and they will make finer specimens for blooming in March. Crocuses may be planted any time up to the middle of December, and bloom well if good bulbs. The middle of October is the best time, and as soon after that as practicable. Your other query is answered in an article in this number.

VARIEGATED MINT.—*Cockney.*— The variegated mint may be struck by thousands all the summer; the cuttings should be three inches long, and the lowest pair of leaves removed. We grow hundreds of them in pots for furnishing; they come in usefully in a hundred ways, and make pretty edgings to baskets of pot geraniums, the pots being set round the edge and mossed over. It is quite hardy, but if kept in pots in a cold-frame, grows earlier in spring than in the open ground. It is more showy than variegated balm. Look over your Wardian case by candle-light after watering, and you will probably catch the depredators. There are plenty of unnamed hardy white and lilac phloxes in gardens; of named varieties the following will suit you:—Antagonist, Ave Maria, Eucharis, Formosus, Belle Etoile, Bourbonensis, Candidissima nova, Comte de Cambord, Crepuscule, La Fiancée, Lilacina, Mont Blanc; the last seven are the hardiest.

SHRIVELLED GRAPES.—*Tyro.*—We believe your vine is healthy and right at the roots, and that the bad state of the berries is owing to atmospheric causes. When you were away was the house shut up, and the vine denied fresh air and moisture? Such we believe to have been the case from the appearance of the berries sent. It would be as well, however, to consider it the roots have got into a cold wet soil, and you will be the best able to judge on that point. Don't hesitate to write again if you still remain in doubt; now is the time to determine for better or worse next season.

CALCEOLARIA.—*Admirer.*—Prince of Orange has a robust constitution, and requires no coddling. We winter it with others of its class in a cold pit. The dahlias you name are first-rate for home culture. See our notice of the Dahlia Show in this number. Lobelia speciosa will winter most safely in a mixture of sandy peat and leaf-mould, and must be kept growing; if once it gets dust-dry, it will never recover. "Garden Favourites," published by Groombridge and Sons, contains the "best practical treatises" on popular flowers.

GLOSSARY, ETC.—*C. H. Simms, Scarborough.*—We endeavour to make every instruction as plain as possible, but we cannot prevent the occasional introduction of terms that may not be understood by beginners. The many practical men who write for our pages, all agree to make their articles as simple as possible; such technicalities as do creep in, you will get to understand in time, and then you will also understand how unavoidable technicalities are in some measure. But we could not possibly comply with your wish.

VERBENA CUTTINGS.—*Subscriber.*—They will root if you are careful; but you are a day or two after the fair. Let them remain in the cutting-pots till spring. Defiance, red; Mrs. Holford, white; Brilliant de Vaise, crimson; Andre, bluish purple; St. Margaret's, crimson scarlet; Mulberry, dark; Blue Bonnet, almost blue; Imperatrice Elizabeth, striped lilac fancy, will suit you, and are easily managed. You are right about the numbers, it should have been *two* batches; the 1,400 is a consequence of the first conclusion.

BEDDING-PLANTS, ETC.—*A. B.*—The same period applies to the bed as to the pots; we should prefer the latter. The prepared soil should be peaty, poor, and very sweet. Young geraniums will do as you propose, but don't be in a hurry to cut any geranium, large or small, where they must bear rough treatment; it causes them to make new shoots, which may be cut off by frost. You have precisely the right idea of a turf-pit. Fruit-room next month.

COLD PIT, ETC.—The bottom may be below the level in a very dry soil, but, generally, it would be too damp, though warmer. The turf walls are simply turves of a regular width, neatly stacked, to form the sides and ends when the dimensions of the pit have been marked out. Read the article on the subject in number one, and you will easily understand the whole affair. We will describe the Waltonian case in detail in good time for its use next spring.

CHEAP GREENHOUSE.—*L. Treleaven.*—The aspect is the best you can have For the measurement you give, we should advise the height to be five feet high in front, and nine feet at back. You will not want a flue; a little iron stove with pipe through the top, covered outside with a mushroom protector, will do to keep frost out. If we knew exactly what the "back-house" consists of, we would advise you in detail.

HUYSHE'S VICTORIA PEAR.—*A. Brown, Elmcrofts.*—We believe this to be a first-rate variety, and it will probably do well as a standard in a good climate. At present, it is only to be obtained through the agency of the Horticultural Society, which distributes grafts of it every spring. If you know a Fellow, get him to bespeak a few scions for you at once; it is not in the trade yet.

LAWN WITH BEDS, ETC.—*M. A. Arnold.*—Don't disturb the arrangement now, put up with it. A few small shrubs from a nursery would afford you something to look at, and they might be plunged in pots to be removed in spring. Next month we will give you some suggestions.

FLOWERS IN THE CITY.—*Rev. A. J.*—We are delighted to hear of your success, and we wish the city could present a few other such examples. Kindly give us till next month for a reply to your queries; our engagements are just now overwhelming.

VERBENA VENOSA.—*P. B.*—This requires greenhouse protection; it will be sure to perish in a frame or cold pit. Rich sandy loam is the best for it, and to be kept growing all the winter: young plants are easier to manage than old ones.

GUYOT'S STRAW PROTECTOR.—*J. L., Brecon.*—We can gain no tidings of M. Guyot.

SIMPLE MODE OF FUMIGATING.

TAKE a common flower-pot, and bore with a gimblet a hole in the side, near the bottom. Place this pot in the middle of the house, on the tiles. Into this hole, insert the nose of the gutta-percha tubing used to water the garden. Pass this tube through a hole in the outside-door of the greenhouse, (which on other occasions, may be kept closed with a cork.) In the pot place the urn-heater (red hot), and a quarter of a pound of tobacco; and placing the nose of a pair of bellows in the end of the tubing outside the house, blow away till all the tobacco in the pot is consumed.

It has also occurred to me that a vessel painted black, placed in the midst of the greenhouse, kept constantly filled with hot-water, by means of a syphon-tube connecting such vessel with a boiler of water, placed on a gas-stove, in the dwelling house, would be a convenient method of warming the greenhouse; but would the steam from the water constantly rising, be proper for the plants? A YOUNG GARDENER.

[We suppose you damp the tobacco. If it were to break into a flame, how would the plants like it? A constant escape of steam in the house would be mischievous.]

METEOROLOGICAL CALENDAR FOR NOVEMBER.

30 DAYS.		WEATHER NEAR LONDON, NOV., 1857.					30 DAYS.		WEATHER NEAR LONDON, NOV., 1857.				
		BAROMETER.		THERMOM.		WIND.	RAIN.			BAROMETER.		THERMOM.		WIND.	RAIN.
		MAX.	MIN.	MX.	MN.	MN.				MAX.	MIN.	MX.	MN.		
M.	1	29.962	29.715	59	36	47.5	SE	.01	Tu	16	30.149	30.133	51	27	39.0	E	.00
Tu	2	29.668	29.654	14	49	56.5	SW	.01	W.	17	30.177	30.027	49	31	40.0	E	.00
W.	3	29.765	29.667	60	51	55.5	S	·56	Th	18	30.222	30.182	54	40	47.0	E	.00
Th	4	29.798	29.767	61	51	56.0	E	.22	F	19	30.256	30.252	45	32	39.0	E	.00
F.	5	29.864	29.811	60	50	55.0	E	.00	S	20	30.271	30.230	50	40	45.0	SW	.00
S.	6	30.043	29.919	57	48	52.5	W	.03	**S.**	21	30.309	30.220	53	29	41.0	SW	.00
S.	7	30.183	30.122	56	40	48.0	NE	.00	M.	22	30.155	29.867	56	41	48 5	NE	.00
M.	8	30.284	30.187	54	45	49.5	NE	.00	Tu	23	29.477	29.359	52	40	46.0	SW	.36
Tu	9	30.401	30.294	54	47	50.5	NE	.00	W.	24	29.493	29.189	49	25	37.0	SW	.12
W.	10	30.559	30.389	53	35	44.0	E	.00	Th	25	29 555	29.512	44	32	38.0	E	.02
Th.	11	30.668	30.628	54	25	39.5	E	.00	F	26	29 575	29.479	46	40	43.0	NE	.10
F.	12	30.694	30.591	53	32	42.5	E	.00	S.	27	30.020	29.775	47	28	37.5	NE	.00
S.	13	30.504	30.368	54	31	42.5	NE	.01	**S.**	28	30.124	30.084	48	32	40.0	NE	.02
S.	14	30.302	30.170	52	38	45.0	NE	.05	M.	29	30.102	29.980	47	34	40.5	E	·00
M.	15	30.271	30.199	50	38	44.0	NE	.00	Tu	30	29.894	29.762	43	33	38.0	E	.00

AVERAGES FOR THE ENSUING MONTH.

THE weather in November is usually very constant to averages, and the gardener may more fully rely on tables, than at any other period of the year. During the last sixteen years, the averages have been as follows:—Thermometer, max., 49°; min., 38°; mean, 43½; Barometer, 29.939. Average weight of water in a cubic foot of air, 2.9 grains, fall of rain, 2.3 inches. By the foregoing calendar of the weather in November, 1857, it will be seen that the lowest point the thermometer touched was 25°, and there were 12 nights of frost, four or five of them severe. But the temperature last November was 3° above the average, namely, 5½° the first week, 2½° the second week, 1½° the third week, 1½° the fourth week, and 2½° the fifth week, including a few days of December, and we are not warranted in expecting any repetition of such exceptions. The following are the highest and lowest temperatures recorded in the month of November during thirty-one years past, and, with the exception of the last, they show a steady decrease with the progress of the month, both as to maximums and minimums.—Highest—1st, 1847, 65°; 12th, 1841, 63°; 16th, 1840, 62°; 28th, 1828, 60°. Lowest—3rd, 1845, 20°; 9th, 1854, 18°; 16th, 1841, 15°; 26th, 1849, 18°.

PHASES OF THE MOON FOR NOVEMBER, 1858.

● New Moon, 5th, 4h. 48m. p.m.
○ Full Moon, 21st, 2h. 25m. a.m.
☽ First Quarter, 13th, 8h. 43m. p.m.
☾ Last Quarter, 27th, 5h. 35m. p.m.

MEETINGS AND EXHIBITIONS, NOVEMBER, 1858.

TUESDAY, 2nd, and WEDNESDAY, 3rd, Stoke Newington Chrysanthemum (new) Society.—SATURDAY, 6th, Crystal Palace Chrysanthemum Show.—TUESDAY, 9th, and WEDNESDAY, 10th, Stoke Newington Chrysanthemum Society.—THURSDAY, 11th, British Pomological.—WEDNESDAY, 17th, and THURSDAY, 18th, Horticultural Society, Great Exhibitions at St. James's Hall.—MONDAY, TUESDAY, and WEDNESDAY, 22nd to 24th, Crystal Palace Exhibition of Birds.—THURSDAY, 25th, Dumfries.

*** *Secretaries will oblige by forwarding Announcements, Schedules &c., of forthcoming Exhibitions.*

THE

FLORAL WORLD

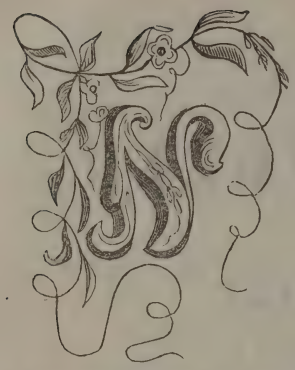
AND

GARDEN GUIDE.

DECEMBER, 1858.

O labour without hope or sign of success, must, in time, break the heart of the stoutest and the strongest; but to enjoy, from the outset, a large measure of confidence and encouragement, must elevate and cheer the weakest. In our little venture, we have been fortunate in every sense, and at the close of this, our first year's labour, we have the gratification of informing those who have taken interest in our progress, that the "FLORAL WORLD AND GARDEN GUIDE" is already established in a prosperous career, and enjoys the good opinions of those to whom its pages are addressed. When we reflect on the number of periodicals which spring up, and speedily disappear—not always through lack of merit—we feel that we have every reason to be grateful for the liberal manner in which we have been supported. When we first addressed the horticultural public in these pages, we took care to make very few promises, so that we have been enabled to perform much more than we proposed to do—a far preferable result than any falling short of the anticipations of readers. As it is not, and never will be, our custom, to parade our claims, or magnify our merits, we will here content ourselves with a general expression of thanks to contributors, correspondents, and subscribers generally. We have endeavoured to meet the wishes of all, as far as our limits and the character of the work would permit, and, as far as we know, we have answered every letter addressed to us, and in nearly all the cases, given precisely the information required, and in such a form as to be useful to others. As our correspondence increases, our labours and responsibilities are multiplied, but our desire is to see it increase still more, that we may have additional opportunities of usefulness, and realize to the full that peculiar sympathy, which, in the course of time, must grow up between an editor and his readers—a sympathy which softens many a hard task, and makes the reading of hundreds of letters, only as the hearing of kind words from as many friends. With the new year, we commence a new volume; and, meanwhile, conclude, in the good old English style, by wishing our readers a "Merry Christmas, and a happy new year."

NOVEMBER EXHIBITIONS.



OVEMBER is a gay month for the lovers of Horticulture in London, whatever it may be in the provinces, for the London growers of the chrysanthemum—a formidable body—muster in full force in their several places of meeting, and the three kingdoms, the continent, and even America, combine in the production of a grand fruit show, just in the centre of Metropolitan fashion. This season the chrysanthemum has taken a most decisive step forward in popularity. Already established as one of the most telling of flowers on the exhibition stand, the shows of 1858 have exceeded in number and excellence any that were formerly held, even before Stoke Newington was convulsed with schism, or Mr. Salter had known one single pang of gout. Since the 1st of November, we have been constantly occupied in visiting chrysanthemum exhibitions, and very delightful has been the task, not only because of the beautiful spectacles presented, whenever this novel autumn flower has been fairly dealt with, but because of the evidence of progress everywhere—improved varieties, improved modes of culture, and, we are happy to say, an improved sense of the moralities concerned, the mutilation of flowers by the hand of the dresser being on the decline. Our notes on the several shows must be very brief; and we will take them in the order of their dates.

Stoke Newington, *November* 2 and 3.—This is the society to which Mr. Arthur Wortley is secretary, and Mr. E. Sanderson, chairman. The meetings are held at the Rochester Castle. The flowers were displayed in good taste, but many of the pompones displayed too many sticks and ties to entitle them to the distinctions awarded them, notwithstanding their high and regular state of blooms. The only novelty was a device in flowers mingled with leaves of variegated plants, the base set out in parterres, with divisions in variously-coloured pompones. The principal exhibitions, with the varieties to which prizes were awarded, were as follows:—Mr. Wortley: Mount Etna, Christine, Vesta, Defiance, Pilot, and Annie Salter. Mr. James: Mount Etna, Annie Salter, Pilot, Madame Camerson, Defiance, and Vesta. Mr. Holland contributed six pompones, all of which presented circular surfaces about three feet six inches in diameter, very evenly bloomed over the whole surface. His sorts were, Dr. Boisduval, Cedo Nulli, Duruflet, Bob, General Canrobert, and Requiqui. Mr. Wortley's pompones were St. Thais, Drin Drin, Helène, Brilliant, Cedo Nulli, and Duruflet. Mr. Butcher had Cedo Nulli, Drin Drin, St. Thais, Bijou d'Horticulture, Brilliant, and Madame Rousselon. The best specimen pompone was a plant of Cedo Nulli, from Mr. George; of large flowered kinds, Mr. Wortley sent a handsome specimen of Annie Salter. A good plant of pompone Brilliant came from Mr. Forsyth, of Shacklewell, who also furnished an exhibition of pompones in 8-inch pots, in order to show what may be done with the chrysanthemum, even in a small state. The sorts were Madame Rousselon, Alexandre Pelé, Autumnale, Brilliant, Trophée, Cedo Nulli, Requiqui, Drin Drin, Adonis, and La Vogue. Mr. Wortley was first in cut blooms. They consisted of Leon le Quay, Queen of England, 15 inches in circumference; Pio Nono, formosum, Raymont, Hermione, Arigina, Dr. Boisduval, Dupont de l'Eure, Aristée, luteum, and stella globosa. Mr. Sanderson sent formosum, Themis, Beauty, Goliath, M. André, Arc-en-ciel, M. Lebois, Miss Kate, Hermione, yellow formosum, Madame Miellez, and Gem. Mr. James's were Nonpareil, Queen, Columbus, Themis, Goliath, Pio Nono, yellow formosum, Princess Marie, stella globosa, Plutus, Hermione, and M. Miellez. Mr. Wortley was also first for 24 cut blooms; he had Hermione, Themis, yellow formosum, Leon le Quay, Annie, white formosum, Pio Nono, M. Lebois, Dupont de l'Eure, stella globosa, Plutus, Arigina, rosa mystica, Raymont, Aristée, Columbus, M. de Molleville, Virgil, Antigone, Racine, M. Miellez, André, and Annie Ferrière. The best anemones were M. Goddereau, King of Anemones, Gluck, Marguerite d'Anjou, Fleur de Marie, Eclipse, and Nancy de Sermet.

Crystal Palace, *November* 6.—The Stoke Newington men carried all before them at the Crystal Palace Show, and as many of the old growers of Stoke Newington regarded the movement of the directors as one of opposition to their own local exhibitions, they agreed to make the best of it, and go in a body to take possession of the honours. And against all England they carried the day. James took the best prizes for large chrysanthemums in threes, in sixes, and in single specimens. His plants were Defiance, Christine, Annie Salter, Pilot, Plutus, Vesta, and Mount Etna. For single plants, Mr. James, and Mr. Wortley, stood together, the first had Defiance, the second Annie Salter, six feet across. Mr. Wortley was first for sixes, with a second prize for a single plant of Trophée. Mr. George, gardener to J. Nicholson, Esq., of Stamford Hill, took a first prize for a single pompone, Cedo Nulli, and a third for Fenella. For six plants on single stems, Mr. Wortley had first prize for Cedo Nulli, St. Thais, Brilliant, Duruflet, and Drin Drin. Mr. Turner, of Stoke Newington, stood second in this class, and Mr. Walker of Upper Clapton, third. In collections of ten, Mr. Forsyth, of Shacklewell, was first, with Requiqui, Cedo Nulli, St. Thais, La Vogue, Alex. Pele, Bob, Surprise, Brilliant, and Madame Celestine; Philopel, a new and beautiful yellow. Mr. Bragg showed the new pompone, Madame Fould, which proves equal to the praise we accorded it last spring as one of the most valuable additions to the class of blush flowers. The plant was three feet across, and well bloomed for a May cutting. In cut flowers, Mr. Wortley and Mr. James were so even in merit, that the judges had a difficulty; but Mr. Wortley was placed first, and Mr. James second; so, in dressing as well as in growing, Stoke Newington takes the first place in All England. The sorts were the same as on former occasions. Mr. Salter of Versailles Nursery, Hammersmith, the father of the chrysanthemum, exhibited cut flowers of seventy-two kinds of pompones, and some new large chrysanthemums, among the latter is new Golden Queen of England, a lovely yellow, Prince Albert, a fine dark flower, which may described as an improved Madame Poggi, and Progne, a rich dark crimson, very nearly of the tint of Geant des Batailles rose.

Stoke Newington, *November* 9 and 10.—This was the exhibition of the society which meets at the Manor Rooms, of which Mr. John Edwards is president. It is an offset of the Rochester Castle. The truth is, both the societies are new, and formed out of the disrupted elements of the old and original corporation, which was the first in England to establish exhibitions of the chrysanthemum. As each contains many of the members of the original Society, which was formed twelve years ago, so each assumes to be the old society itself, and the present year's exhibitions are, by each party, described as the "Twelfth Annual Exhibition." This was a much better exhibition than the one held on the 2nd and 3rd; there was a larger contribution of plants, and they were, generally, better grown—in fact, it was the greatest success yet achieved at Stoke Newington. Among large flowered sorts, Mr. Scruby sent Vesta, Pilot, Annie Salter, Madame Camerson, Dr. Maclean, and General Havelock. Mr. Argent had Vesta, Christine, Defiance, Albin, Annie Salter, and Pilot. The same with the addition of Mount Etna, were furnished by Mr. Ward. Mr. Merry sent a single specimen, Vesta, Mr. Scruby, Christine, and an enormous specimen of the latter; and Mr. Argent the same. Mr. Argent's plant measured 7 feet in width, and about as much in height, and formed a good centre-piece. The pompones furnished by Mr. Wiggins, gardener to E. Beck, Esq., were the admiration of everybody, being quite five feet in diameter, and literally loaded with blossoms. They consisted of Duruflet, Bob, General Canrobert, Cedo Nulli, Helène, and Brilliant. To these the silver cup was awarded. Mr. Holland, Spring Grove, Hounslow, produced General Canrobert, Duruflet, Bob (the best plant of the kind in the room), Cedo Nulli, Helène, and Requiqui. Mr. Bird took a silver cup for twenty-four cut blooms. They consisted of Arc-en-ciel, Two-coloured Incurved, Beauty, Alfred Salter, Queen, Themis, Madame André, M. Lebois, yellow formosum, Stella Globosa, Duke, Nonpareil, Newington Beauty, Albin, Trilby, Leon le Quay, Dupont de l'Eure, Hermione, C. Columbus, Plutus, Aristée, Raymond, white formosum, and Etoile Polaire. Mr. Oubridge had the best 12; viz., Themis, Queen, Alfred Salter, Goliath, Madame André, Two-coloured Incurved, Newington Beauty, Nonpareil, Arc-en-ciel, Plutus, yellow formosum, and Dupont de l'Eure. The best six came from Mr. Bird, who sent Queen, Themis, Alfred Salter, yellow formosum, Nonpareil, and Dupont de l'Eure.

Albion Hall, Dalston, *November* 15 and 16.—This exhibition of the East London Chrysanthemum Society, to which Mr. Cole is secretary, was the most complete in its effect as a spectacle, of any that we have attended this season, not excepting even that of the Horticultural Society, or the second show at Newington. The society enjoys the advantage of having one of the very best halls for the purpose, and in the arrangements for the show, made by Mr. Gildersleve, these advantages were turned to the best account, so that the public were gratified with a spectacle of no common beauty. Mr. Broome rendered some assistance in staging the plants, and Mr. Cole, the secretary, was most assiduous in performing the duties of his office. Where there is so thorough a spirit of co-operation, success must follow, and we point to this rising society as an example of what may be accomplished by amateurs trusting to union among themselves, independently of any extraneous sources of support. Nearly 4,000 persons visited the show during the two days. One of the principal features was a set of six pompones, grown by Mr. Hutt, which obtained the first prize. They were paired in colours, with good judgment, and were as evenly bloomed, and as free from visible sticks and ties, as any we have seen this season. Mr. Pratt's 12 pompones, and 3 large plants, were particularly good, considering they were grown in a confined space, without the help of a single inch of glass. Mr. Pratt's Christine, and Mr West's Pilot, were excellent. A very good feature was the exhibition of flowers on stems, with leaves, and without dressing, for which there was a prize of a garden syringe given. Mr. Cole's pompones, and the noble plants sent by Mr. Holland, of Hounslow, merited all the praise lavished on them by visitors. Mr. Gildesleve, who won golden opinions for the excellent arrangements, sent some new varieties of pompones, which were much admired. The prizes were awarded as follows:—24 blooms: 1st. Mr. W. Bolton. 2nd. Mr. Vile. 3rd. Mr. Pratt. 4th. Mr. Fisher.—6 Pompones: 1st. Mr. D. Hutt (nobly won). 2nd. Mr. Swainson. 3rd. Mr. E. Bolton. 4th. Mr. Pratt.—Chrysanthemums: 1st. Mr. Pratt. 2nd. Mr. Hutchins. 3rd. Mr. West. 4th. Mr. Swainson.—12 blooms: 1st. Mr. C. Bolton. 2nd. Mr. N. Bolton. 3rd. Mr. Pratt.—6 blooms: 1st. Mr. Cole. 2nd. Mr. C. Bolton. 3rd. Mr. D. Hutt. 4th. Mr. Hutchins.—6 blooms, reflexed varieties: 1st. Mr. Vile. 2nd. Mr. Fisher.—6 blooms, Anemone varieties: 1st. Mr. Clark. 2nd. Mr. Scarrott. 3rd. Mr. Cole.—Extra Class, 6 blooms undressed, and with leaves on the stalks: 1st. Mr. Cole, with Plutus, Queen, Trilby, Christophe Colombe, Anaxo, and Princess Marie. 2nd. Mr. Lacey. There were five other exhibitors in this class, and the flowers, with their leaves attached, had such a noble appearance, that we are persuaded our late remonstrance against dressing will, in time, lead to salutary changes, in bringing prominently forward those varieties which are worthy to compete on their intrinsic and natural merits. The judges were, for plants in pots, Messrs. Kendall, Holland, and Wiggins. Cut blooms: Messrs. Hall, Oubridge, and Paxton.

Horticultural Society, St. James's Hall, *November* 17 and 18.—This was the annual show of fruit, with a new feature added, in special classes for chrysanthemums. It was a brilliant affair, and, on both days, was thronged by the lovers of horticulture, and the most distinguished members of the fashionable world. The fruit was, generally, in fine condition, some of the black Barbarossa grapes exhibited by Mr. Little, gardener to Mr. A. Darby, of Stoke Court, Slough, weighing, in one bunch, not less than 5lbs. There were also some magnificent Muscats and Hambro's. The pine-apples, in threes, and single specimens, sustained their usual sovereignty among the fruits, and were as fine as any from the tropics. The pears, including the Duchess d'Angouleme, Glout Morceau, and others, and the apples King Pippin and Nonpareil, were, generally, fine. Amongst the exotic ferns of rare beauty, was the curious platycerium grande, grown by Mr. Sumner, gardener to Mr. Mongredier, of Forest-hill. The chrysanthemums most effectively crowned the display at the orchestra end of the hall, beneath the organ, which, under the management of Mr. Smart, contributed some animating strains of music during the day. The general arrangements were entrusted to Mr. Archibald Henderson, and Mr. W. B. Booth, the secretary. The judges were Messrs. W. Tillery, J. Spencer, T. Ingram, and R. Foggs. The prizes were as follow:—Pines: 1st. Mr. Lewis. 2nd. Messrs Webber.—Grapes (Muscats, baskets): 1st. Mr. Hill, gardener to R. Sneyd, Esq., Keele Hall, Staffordshire. 2nd. Mr. Miller, gardener to Sir W. Smith, Bart., Cardiston. 3rd. R. Crawshay, Esq., Cyfarth Castle, South Wales.—The judges for pears were Messrs. H. Bohn, C. Edmonds, M. Busby, T. Rivers, and J. Whiting. The first prize was gained by Mr. Ingram, gar-

dener to her Majesty. 2nd. Mr. Cox, gardener to W. Wells, Esq., Redleaf. 3rd. Mr. Park, gardener to G. H. Vernon, Esq., Retford.—The judges for apples were Messrs. R. Smith, C. W. Strickland, J. Duncan, and H. Bayley. For dessert apples, the first prize was gained by Mr. Newton, gardener to G. Graham, Esq., Enfield Chase. 2nd. Mr. Simpson, gardener to Lady Molyneaux, Stoke Ferry, Slough. 3rd. Mr. T. Frost, gardener to E. Betts, Esq., Preston Hall, Maidstone.—In the nurserymen's class for Chrysanthemums, Mr. Argent, of Stoke Newington, was first, with Christine. 2nd. Mr. Mackintosh, of Hammersmith. Mr. Wortley, of Stoke Newington, obtained the amateur's prize.—In class 43, 10 pompones (amateurs), the first prize was obtained by Mr. Shrimpton, gardener to A. Doxat, Esq., Putney-heath. 2nd. Mr. Wortley, Stoke Newington.—Class 44, 10 pompones (nurserymen): first prize, Mr. Bragg, Star Nursery, Slough. 2nd. Mr. Forsyth, Shacklewell. 3rd. Mr. Mackintosh, Hammersmith. Mr. Bird, of Stoke Newington, exhibited some beautiful specimens of cut blooms. Mr. Hutt, of Dalston, sent six beautiful specimens of pompones, and took an extra prize.

MANAGEMENT OF A FRUIT-ROOM.

To keep apples and pears seems, of late years, to be a more difficult matter than it was years ago, for we hear more complaints of fruit keeping badly; and people want to know how it is they cannot keep their fruit so well as their grandfathers and grandmothers did. The fruits of 1857, though so abundant and fine in quality, certainly proved troublesome to keep; and in several of the best seasons we have had during the last ten or twelve years, a similar difficulty has been experienced, owing, as it would appear, to some peculiar condition of the saccharine, consequent on the character of the season. These exceptionable cases, however, appear to me to be of little consequence; the seasons do not differ greatly, taking a series of years, and I suppose our grandmothers now and then found their apples and pears inclined to go soft towards Christmas. To keep fruit well, needs a little philosophy, as well as a little experience. If gathered with great care, and just before becoming dead ripe, all that is requisite is to exclude light, and secure a uniform temperature, of from forty to fifty degrees. A touch of frost may not injure apples severely, but they retain their flavour and appearance better, if never allowed to approach even near to the freezing point, and, on the other hand, warmth soon induces a tendency to decay.

The best place for a fruit-room, is below the general ground level, provided the situation is not damp, and, as to the general construction, it need differ very little from a shed for ice as to shelves and other details; that is to say, the flooring, walls, roof, &c., should be dry, and dark, and all of non-conducting materials, so as to preserve a uniformity of temperature. If a shed is constructed for fruit, the walls should be hollow, and if they are of wood, the hollow space between the planks should be filled with sawdust. To keep out damp, the floor should be of concrete, and the situation should be drained. There should be windows to admit light and air, but they should be filled with close shutters, so as to ensure complete darkness and a still air, so essential to the perfect preservation of fruit. As to shelves, thin strips of deal with spaces between, are better than planks, and there need not be a single whisp of hay, straw, paper, or any other material that would harbour damp.

But to be able to provide a regular succession of dessert pears, a source of artificial heat is requisite, and in a place where any kind of heating apparatus is in use, a little of the surplus heat may be turned to account, to warm one corner where a few pears can be brought into condition as required. Of course any great amount of heat in the general store would do much mischief, and so, also, would frost, and in seasons when the frost defies thatch and matting, a little warm air would save the stock at a time when it would be of the greatest need. But there are thousands who are obliged to find room for their winter supplies of fruit in the dwelling-house, and in sheds in the garden, and elsewhere. In all such cases, they have only to remember the conditions above referred to, to be enabled to judge for themselves as to the best way of turning to account whatever conveniences exist. To describe mistakes, is often more instructive than to give lengthened directions, and I will, therefore, tell how I saw the entire produce of a large garden destroyed last winter. The fruit, consisting of apples and pears, was gathered in damp weather, and without any care to prevent bruising, &c. The baskets were carried to a shed as fast as

they were filled, and the fruit rolled out anyhow on the floor in heaps "to sweat." In the course of a fortnight, a closet was cleared out and boarded up in front, so as to convert it into bins. A stratum of hay was laid down in each bin, then a layer of fruit upon it, then hay again, and so on, till every bin was filled. In the course of three weeks, the smell of the apples in the house became intolerable; the closet was opened, and the stench that rushed out was, for the first hour, terrible. Then the fruit was examined. The top layer looked well, but the apples were soft and flavourless, the second layer was half melted into a paste, and the remainder of the bottom of each bin *was cooked* by the fermentation of fruit and hay together, and had all run into a disgusting jelly. Let our readers beware how they pack fruit with any material that will absorb and retain moisture.

One of the best fruit-rooms, of the make-shift sort, I know of, is a large recess in a stone-floored dairy, in the house of one of my neighbours. At one end there is an arch in the wall, forming a sort of tunnelled retreat, which is paved with a continuation of the flags. There is just height enough for one person to enter stooping, and the width is about ten feet. At the back are some rough shelves fixed against the wall, and the fruit is spread on these shelves and laid on the stone-floor, and is seldom turned or looked at, but taken away as wanted, and pears and apples, grapes in bunches, morello cherries, and other kinds of fruit keep admirably—better than in many a well-built fruit-house. They are safe from frost, heat, and light, and have just as much air as necessary, and no more.

The next best fruit-room on the make-shift principle, that I remember, is in the humble cottage of a neighbour of mine, who is noted here and for miles round, for his skill as a fruit-grower, and the immense quantities of apples and pears, plums, and bush-fruits, he manages to gather from a very small strip of ground. He has appropriated an attic under the thatch of his cottage to the purpose, by fitting shutters to the window; the shutters are opened only when there is something doing among the fruit. All round, he has open battens, on which the apples are piled like we see shot piled in an arsenal—no straw, or any kind of litter about them. The centre of the room is occupied with some old crates, such as are used to pack glass in, and these are stacked full with a mere sprinkling of straw among the fruit, to prevent injury by pressure. Then, under the battens, all round the room, is a continuous row of large earthenware pans, with close-fitting lids, in which, the best and longest-keeping sorts are stored. Christmas generally clears off every visible pear and apple, and then the pans give up their stores, and the fruit comes out of them as fresh looking, as plump, and as gummy to the touch as when fresh gathered, and, as you may be sure, very much improved in flavour. Apples and pears keep this way, till May or June of the next season—nay, my friend has kept French crabs in those pans for two years;—but then his fruits are gathered like gold-dust, in baskets, over which pieces of old sacking have been stretched to prevent bruising. They are left in the baskets a week, and then carefully sorted, and those put in the pans are simply laid in one upon the other, till the pan is full, and the lid put on. Once or twice during the winter, the whole are shifted, by simply beginning at one side of the room, and removing every fruit out of the first pan, into a spare one, in which it is shut down. The one emptied, is then wiped clean and dry with a cloth—not washed—and the contents of the second pan shifted into that and so on to the end. Thus, any that are beginning to decay, are detected and removed in time, and the state of the whole store ascertained. It is tedious work, but the increased value of good fruit in the early part of the spring, fully compensates.

I have tried dry sand, and dry sawdust, in which to pack apples and pears, and have found them to keep better so, than in any other kind of packing material, but the sand makes them gritty, and one feels a natural repugnance to washing fruit, either for dessert or the kitchen, and it is impossible to get the sand out of the eyes and stalks without, so that this is a great objection to sand. Apart from that, however, I never saw fruit keep more plump and fresh than in sand, and they may be fitted in layers, and made up to a slope with less trouble and greater certainty, than by any other method of keeping. Next to sand, sawdust is capital and cleanly, but I would, myself, never use any but beech or maple sawdust; all woods that have an odour, or any amount of resin, such as deal, mahogany, &c., are sure to communicate a flavour to the fruit that deteriorates it.

Lincoln, B. B. B.

DECEMBER WORK IN THE GARDEN AND GREENHOUSE.

We are not prepared to incur the responsibility attaching to the office of the prophet, else we would predict a desperately wet winter, and would urge our readers to get earth-work, planting, &c., completed as speedily as possible, for it is likely enough that out-door work will be scarcely practicable for the next two months. We have had an unusually dry season; brooks are dried up, wells have failed to give their wonted supplies, and, in many places, trees and shrubs planted last spring, have perished entirely, or have scarcely got hold of the ground even now. The mean temperature, and the mean rain fall, are, however, pretty constant, and what is withheld by Providence, at one season, is usually compensated for in another, hence, as we had less than our usual amount of rain in October, and scarcely any all through November, a very heavy fall may be expected before the year terminates, and, indeed, may come before these pages meet the reader's eye. Nature never remains long in our debt, and the amount of rain to be expected during a certain season, if withheld, may be given at last in one single day, as happened on the 22nd of October, 1857, when, in the course of a few hours, the heavens let fall a deluge. December is a most uncertain month; it may be hard frost with snow or muggy weather, and drizzling rains; and so long as the weather continues open for a single day, whatever needs to be done out of doors, should be done at once, and everything should be left so that the severest weather can do no harm. The probabilities are in favour of long-continued and heavy rains, and when once the ground gets soddened, it does more harm than good to touch it; hence, where planting cannot be completed pretty early in the month, it is best to leave it over till February, for from the middle of December to the end of January, is a hazardous time to disturb any kinds of trees and shrubs.

Kitchen Garden. — Lay all spare ground up in trenches, and on strong land turn in manure. On sandy soils manure should be withheld till spring, as it may get washed away by the winter rains. All choice crops should be at once protected sufficiently to enable them to resist the severest weather; take up broccoli and lay them in by the heels with their heads to the north, and earth up the stems nearly to the heads, and beat the earth into a firm slope to throw off the rain. Any cauliflower or lettuce plants remaining out, should, except in very warm sheltered spots, be at once got into frames or pits, or under hand-lights, but are to have air at every favourable opportunity. If damp hangs about them for any length of time, they will suffer more than from cold, and at the first severe frost may be cut off altogether. Sow Sangster's No. 1, and Daniel O'Rourke Pea, and a few rows of mazagan beans on dry warm slopes. It is best to sow thick, and cover the drills with fresh wood or fine coal-ashes. If the plants are too crowded, they may be thinned, and a few more rows made by transplanting, but the chances are that weather and vermin will thin them sufficiently before the time for the first spring sowings. Plant rhubarb, seakale, asparagus, and potatoes. Go on forcing all except potatoes, and of the latter, a few ash-leaved may be planted in frames over well-tempered dung, for an early supply. They do very well under calico lights, but will require to be well protected by mats or litter during frosts.

Fruit Garden.—Prune and nail in wall-fruit trees, and give a little protection to the roots of tender fruit trees in hard weather. Straw or dry fern will answer as well as anything for this purpose, as also to bind round the stems of vines that are planted in borders outside of houses. Dig lime and soot into the soil between the rows of currants, gooseberries, and raspberries, to nourish the roots and keep down vermin. Plantations may be made now, and canes of currants and gooseberries put in to increase the stock. Old apple and pear trees should have special attention now. Where they are mossy or infested with blight, scrub them with a dandy brush, dipped in warm brine, or scrape the moss off with any blunt instrument, such as an old hoe. As a rule, orchard trees should not be pruned at all; but the rule is open to many exceptions, and the knife and saw must be used freely wherever trees have been allowed to grow into a confused mass of entangled branches. Cut all dead branches away to the quick-wood, and smear every wound made in the pruning with some clay paint. Rank growth should be cut in, and the whole of the branches regulated,

so as not to cross each other, or crowd the centre with useless spray. But mere cutting and hacking at trees that bear well, is the sure way to ruin them, and cottagers especially, are apt to ruin their trees, through a vague notion that anyhow they *must* be pruned. A good dressing for trees infested with scale, is one made of soft soap, cow dung, and lime; or clay, sulphur, and lime, worked into a paste with water. With this, every hole should be stopped, and if the compost cracks with the frost, it should be renewed.

Flower Garden.—The shears and pruning knife should be used freely amongst evergreen and deciduous trees and shrubs, to keep them within proper limits, and to promote a vigorous and orderly growth. Clear all dead stems and leaves off the borders, and carry to the heap to rot for potting compost. A hole in some out of the way place is the proper destination of vegetable refuse of all kinds. In many places the leaves are left to be dispersed by the winds under fences and into dark corners, where they become a nuisance, and are lost for all useful purposes; every lover of flowers should prize them as material for one of the most valuable of ingredients in soils for flowers. Take up Tea and other tender roses, and lay them in by the heels against a warm fence, where they can be covered with straw in hard weather; get fuchsias and other half-hardy plants into pots or boxes, to remain under the stage in the greenhouse, or any place safe from frost, or, if to remain in the ground, tie straw around the stems of standard; and dwarfs cut close over, and cover the crowns with coal-ashes. Tulips, pansies, phloxes, &c., in the open ground, should have a little protection during frosty weather, either by means of mats on hoops, or light dry litter strewed amongst them. Look over plants in pits and frames, and remove dead leaves, and see that they are neither perishing for want of moisture, nor suffering from damp. As chrysanthemums go out of bloom, cut them down and pack them away in a sheltered place, where they can be covered during frost. Cuttings of chrysanthemums should be struck for specimen culture next season. Get in, at once, any bulbs not yet planted.

Greenhouse and Stove.—After frost we always have damp, and in the house this will do much mischief, unless a brisk fire be made up and air given at once to dissipate it. During foggy weather, a little fire-heat will be useful during the day, even if the temperature is not very low, for it allows of a little ventilation, and a change of air is most essential to the keeping of the plants in health. Chrysanthemums are very useful now to keep the house gay till Christmas; after which, camellias, rhododendrons, primulas, cinerarias, &c., will be coming on to usher in the spring. Plants, to be forced, should be put in the greenhouse before they go to the stove, for too sudden a heat is sure to exhaust them, and cause many flower-buds to break into leaves. Deutzias, lilacs, and double peaches, are of great value for conservatory decoration, and are easily forced now with very little heat. Hyacinths for early bloom should have plenty of light, and weak manure-water occasionally. Plants in pots and frames should have air as often as possible, and the soil in the pots should never be allowed to become dust-dry, or the delicate fibres will suffer. So long as frost is effectually kept out, geraniums, calceolarias, verbenas, &c., will be pretty sure to hold up till February, when they must be started for cuttings. Keep them free of dead leaves, and do not crowd them too closely, and, above all things, do not touch with the knife, any that are to be kept without fire-heat. In the greenhouse, geraniums potted up from the beds, may now be cut in, to commence growth for early blooming. Vines, in the early house, should be watched with attention, and air given at all convenient seasons. Do not raise the temperature till the buds have broken well, and if the border cannot be warmed, see that it is well protected. When fairly started, raise the heat to 65 degs. by day, and 60 degs. by night, and take every necessary precaution to prevent cold dry blasts of air from coming in contact with the tender foliage. Pines must have very uniform temperature, as sudden changes are apt to cause them to fruit prematurely. Those to fruit from May to August, should now be well matured, and kept in robust health, without being hurried into growth, but those to fruit next autumn, should be kept growing to prevent too early a disposition to fruit. If the soil gets too dry about young pines, they are apt to fruit too soon, and, at the same time, they must have no more fire-heat than is just sufficient to keep them in health. Average temperature in greenhouse, 40 to 45 degs.

GRAPE VINES IN POTS.

In all the round of fruit culture, I know of nothing more worthy of an amateur's attention than the culture of grapes in pots; for though there is literally no difficulty in the way of success, yet the task calls for just such an amount of skill, and perseverence, and judgment as are requisite to give zest to the enterprize. The man who has no genuine appreciation of horticultural principles, will never make much progress in this part of the art, but the true amateur, whose heart is in his work, may enter upon the pretty task with the surest hope of being well rewarded for his labours. Those who have seen the pot-grapes exhibited from year to year—and this year, they were shown at St. James's Hall, in, perhaps, better condition than ever—must be fired with a wish to produce such unique specimens of vines artistically trained, and holding out their luscious bunches temptingly and persuasively.

But we are only now beginning to understand the grape vine; it has been more abused by empiricism, and artificial treatment, than any subject we have; and I hope here to show that the pot-culture of grapes is almost as simple, and attended with but little more trouble, than the culture by any other method. The old fashioned plan of growing vines in immense pots, and forcing them into abundant bearing by stimulants, has exploded; and any course of treatment which hurries a plant into premature age, or, rather, murders it in its very infancy, must explode with the progress of knowledge in horticulture. To the gardeners in large establishments, therefore, who have been content to take one crop from a vine in a large pot, and then consign the plant to the muck-heap, let me say this plain word—you know nothing about pot-culture of grapes, and must begin again *de novo*.

As some of our correspondents have written for information on this subject, I will briefly treat of it in each of its several departments, and should have done so last month, had not the chrysanthemums almost wholly occupied me, both in preparing my own show, and visiting others, both public and private. But there is nothing lost by delay, for those who purpose to pursue the culture from the beginning—and I would advise the amateur fruit grower to give the preference to plants of his own raising—can do little till the middle of January. Then is the time to begin striking from eyes, which is far preferable, if handsome bushes are required, than either coils or cuttings. But the sorts required to be propagated, may not be in the possession of the grower, in which case he may obtain prunings from a nursery for a trifling expense— failing to get these, he must, of course, get plants, and these should be not less than two years old.

The prunings should be thrust into a pot of moist loam without any shortening or trimming, and put in an open shed, or anywhere away from the stimulus of heat, and exposed to the air, without being subjected to any severe frost till the middle of January. Then secure a sweet bottom heat, of 70 or 80 degs., and prepare as many five-inch pots as you require plants, for the eyes must be struck singly. Put one-third of crocks in the pots for drainage, and fill up to the brim with chopped turf lightly sprinkled with silver sand, and press quite firm. To make the eyes, choose the plumpest buds, and cut them off the stem, with an inch of wood below the bud, and half an inch above it—the latter must be cut horizontally. Thus you have a bud with a certain portion of wood and bark attached to it; place this in the centre of the pot, press it down on the firm soil till it is immoveably imbedded, strew over it a little fine soil, and press this firm over the bark, but leave the point of the bud uninjured, and just peeping through, and finally sprinkle a little silver sand over to hide the bud itself. Having prepared all the pots in this way, plunge them in the bed prepared, in which the heat must be moist and constant. Since I have dabbled with the hot-water system, I prefer a bed of bark over a tank, but dung-heat will do well to strike vines, if well managed. When they have fairly started, the heat may be allowed to decline, and they will require only good greenhouse treatment, plenty of air, occasional syringing of the foliage—but they must never be recklessly drenched with water, as I have seen some growers treat young vines—and while young never once taste liquid manure.

When they are about fifteen inches high, shift them into seven-inch pots, and use a compost of turfy loam, with one-fourth very rotten powdery dung and leaf-mould Now give them liberal culture, keep the foliage in the highest health by the use of the syringe, and a plentiful admission of air. As they fill their pots with roots, shift them liberally, and train out the shoots; they may enjoy plenty of light, and a free circulation of air amongst the foliage. At the end of the first season, cut them back to two buds, and when these break next spring, remove the weakest, and train the other to form a strong cane, and when this is six feet high, stop it to strengthen its lower part, and promote a thorough ripening of

the wood. On this plan of procedure at the end of the second summer, they will be strong canes. Those who purchase two-year old vines for fruiting, and those who have raised them, will, from this point, be on a level; therefore, what follows, is the practice for those who may this season purchase vines for fruiting in pots next year. There are various methods of fruiting vines in pots, but for amateurs who wish for handsome plants, to place on the dining-table or side-board, as ornaments when their bunches are ripened, as well as for those who purpose to compete at the shows, I recommend the following:—

First of all prepare the compost of two-thirds turfy loam, and one-third well-rotted dung, to which, add for every plant, a quart of inch and half-inch bones, not bone-dust, and a sprinkling of sharp sand. The pots should be 11 or 12 inches in diameter, and have three or four holes at the bottom for drainage;—if they have but one hole, enlarge it, with a hammer, or the drainage will be defective. Place some largish pieces of tile at the bottom, and on those a layer of three-inch pieces of bone, and another layer of two-inch or inch pieces, then use the rougher parts of the compost, which should be lumpy, with a little fine stuff to fill in between the lumps, and prevent cavities, and press or beat the whole very firm before turning out the vines, so that the ball will stand on a hard bottom. Put your vines in order, and prune every one back to within eight or nine buds of the base, then turn them out into the large pots, fill in with the compost, and fill up as firmly as possible, for no potted fruit tree will prosper, if potted in loose stuff.

If the canes are strong, each of the buds left to form the head will give a bunch—say five buds, five bunches for the first season's produce, for the lower buds must be stopped when four inches long, and the five bearing-buds must be stopped one joint above the bunch, and all laterals pinched off at the buds, from the base; the bunches must, of course, be thinned when about the size of peas. In all the growth, during this first fruiting season, the knife ought never to touch them. The best pruning is that accomplished with the finger and thumb.

To promote a fair setting of the fruit, give water liberally, syringe the foliage frequently, and once a week, till the bunches begin to change colour, give a dose of manure-water—one pound of guano to twenty gallons. Fresh dung, steeped in a tub and allowed to become clear, is very beneficial, as is also soot-water, but never let it be too strong, for to feed a vine grossly, is to ruin it for ever, as those who have grown grapes on the old system of soddening their roots with garbage, have learnt to their cost.

At the end of the season you will have a clean strong stem, with five spurs, and a few short joints below, which latter must be cut clean away. The month of October is the proper time for this work. The next work for the knife, is to cut each of the five spurs back to the fourth or fifth bud from the stem; if the fifth be very plump, cut close over to it; if not, cut to the fourth. But only two buds are to remain on each spur, namely, the first and the last. The one at the point is to give its bunch, and the one at the base, next the main stem, is to furnish a shoot for next year.

Having pruned the vines, give them a top-dressing, by removing the top soil all round the pot to the depth of six inches, but be careful not to disturb the soil next the collar, except to pick out any loose lumps or dust, and replace it with some of the finer parts of the compost, which should consist of two-year-old night soil, and fat loam equal parts, well broken together, and thoroughly sweet. Well-decayed pigs'-dung I find to answer well, its unctuous nature just suiting the habit of the vine, and when well chopped up with loam, and a few cakes of old dry turf, its stimulating qualities are subdued, and it nourishes without feeding grossly. This mixture must be rammed in tight all round, and the crumbs put round the collar should be beaten firm, but with care, not to bruise the bark of the vine. Give a good soaking with water, and put the trees to their winter quarters, where they must have no more water till they require it in spring. The next season they may be allowed to root through the pots into a rich, loose border, to get a little extra nourishment, and, at the October pruning, these roots must be cut away, and the vines top-dressed as before, and with liberal treatment, they will give a dozen bunches each, and pay in produce as well as in the pleasure they afford for the care bestowed upon them. Of course there are other methods of treatment, but I have preferred to describe the simplest and the safest. When the grower has acquired experience, his own practice will suggest many deviations from the above routine, which is offered for those who would have handsome plants, fine bunches, and an amusing course of culture, and the least risk of accident or failure, by

AN OLD GARDENER.

[As our valued contributor has not given a list of sorts, we would add to his excellent advice, that the best varieties for pot-culture are Black Frontignan, Purple Fontainbleau, Esperione, Grove-End Sweetwater, Golden Hamburgh, Black Hamburgh, Chasselas Musquée, Royal Muscadine, Chaptal, and Chasselas Blanc de Keinsham.]

MR. RIVERS ON THE CULTURE OF THE ROSE.

THE following excellent advice to rose growers, occurs in the thirtieth annual issue of "Descriptive Catalogue of Roses," grown for sale by Mr. Rivers, of Sawbridgeworth, Herts:—

"1st. For a neat surface-dressing for autumnal Roses, wood ashes and guano have proved most excellent fertilizers, in the proportion of half a peck of guano to a bushel of ashes, applying a quarter of a peck of the mixture to each tree in a circle of three feet in diameter round the stem, and letting it remain undisturbed on the surface. The ashes retain the moisture from the dew and showers; and the effect, in giving a vigorous growth, with an abundant crop of flowers, in the autumn, has been very apparent; this dressing should be given in February. Soot, in heavy cold soils, is also very good for surface dressing; this should be applied in January and February, about a quart to a tree in a 3 feet circle, and lightly forked in, in April.

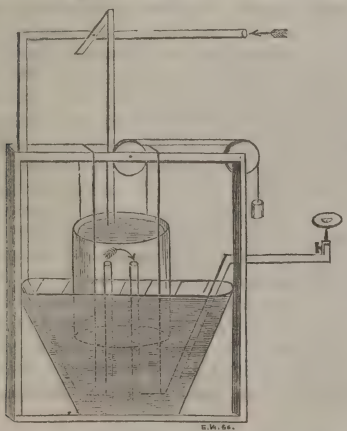
"2ndly. I have found night-soil, mixed with the drainings of the dung-hill, or even with common ditch or pond water, so as to make a thick liquid, the best possible manure for Roses, poured on the surface of the soil twice in winter, from one to two gallons to each tree. December and January are the best months; the soil need not be stirred till spring, and then merely loosened two or three inches deep with the prongs of a fork; for poor soils and on lawns, previously removing the turf, this will be found most efficacious. Brewers' grains also form an excellent surface dressing; they should be laid in a heap two or three weeks to ferment, and one or two large shovelfuls placed round each plant, with some peat charcoal to deodorise them, as their smell is not agreeable.

"3rdly. For protecting the Bourbon, Chinese, Tea-scented, and other Roses, on their own roots, nothing can be better than moss procured from shady banks or woods. It should be placed round each plant, one or two inches from the stem and branches, not closer; about nine inches and a foot thick. This prevents the ground from being frozen; and, although the tops of the shoots may be killed, they grow vigorously from the root on the return of mild weather. This covering may be applied early in December, and remain round the plants till the end of March, or even later, if a cold, backward spring.

"4thly. Hybrid Perpetual and Bourbon Roses, bloom much more abundantly in autumn if they are removed annually in November, particularly in poor soils unfavourable to Roses. They may be replanted nearly or quite in the same places, giving to each plant a shovelful of rotten manure, which should be mixed with the soil in filling in. The annual removal is absolutely necessary for Roses on the Manetti stock in poor light soils, for, unless they are removed, they cease to bloom freely in autumn."

GAS HEATING—HOW TO REGULATE THE SUPPLY.

I SUPPOSE W. W's. want of success with gas stoves arises from the irregular supply of gas from the gas works. I have a regulator in use which answers well in my small way, and have no doubt it would be advantageous to many of your readers, who heat by means of gas. It cost me only four shillings, and is merely a small gas-holder with a rod fixed to the top, and attached to the gas-tap. The apparatus is placed between the gas-tap and the burner. The gas-holder being adjusted according to the supply of gas required.



If a greater volume of gas passes the tap than is necessary, the rod rises and moves the tap handle, which partially turns off the gas; if not sufficient gas, the rod descends and turns on more.

If you or W. W. would like to see my regulator, and will make allowances for the rough workmanship of an amateur, and will favour me by a call, I shall be happy to show it, or give any further information you may require.

M. MALTBY.

5, *Springfield Terrace, Grove Hill, Camberwell.*

BULBOUS FLOWERS, AND LYCOPODIUMS.

BY SHIRLEY HIBBERD.

THERE are two matters that engage me just now, and those are, to secure a supply of bulbs for a few beds, and about forty yards of ribbon, where, at the present moment, my pompones are blooming, in the places vacated by the summer bedders. This part of the garden—in immediate contiguity to the house—is to be kept gay all the year round, and hence a considerable portion of the succession flowers have to be grown in pots, and either turned out, or plunged. All my hyacinths, tulips, jonquils, narcissus, and scillas, for this part of the garden, are in pots. Elsewhere, they are planted in patches, in good loam, with a spadeful of dung to each patch; but crocuses are the only bulbs I can put in the ground for the ribbons, because of the chrysanthemums in November, and the bedders in June. The chrysanthemums are in pots, plunged: a row of tall sorts, including Christine, Alfred Salter, Beauty, Themis, Auguste Mie, Leon Lequay, Antigone, Jenny Lind, Hermione, &c.; in front of these, a close file of Autumnum, and Drin Drin, in alternation; then a row of Cedo Nulli, and, in front, a row of Requiqui, next the stone edging. The beds are of pompones, mixed, and the borders are furnished principally with the large varieties; to follow these, we have a stock of evergreen shrubs, and variegated kale, in pots, and the next succession is of bulbs.

The whole of my bulbs were potted between the 6th and 13th of November, just one month later than my usual time for the first batch. But there is good time yet, for those who have not made sure of spring flowers, and, while they last, hyacinths and tulips may be matched against all the flowers of the world for beauty. My plan of growing hyacinths in pots, for out-door use, is very simple. The pots are of two sizes, thirty-twos, with two bulbs in each, for the outside rows of circular beds, and sixteens, with four bulbs in a pot, for the middle, and second circle, and for ribbons. If you pay a good price for bulbs—and mine cost me £3 10s. per hundred—it is sheer folly to cramp them into small pots, and ruin them in a season, for want of root-room—and they want depth of soil especially. My stock of hyacinths this season consists of the following varieties: — *Red:* Boquet Tendre, Boquet Royal, Racine, Dan O'Connell, Nonpareil, Rose of Holland, Sans Souci, Waterloo, Appelius, Lord Wellington, Mars, Princess Elizabeth. *Blue:* Alamode, Albion, Keizer Alexander, Kroon van Indian, Lord Wellington, Noir Veritable (nearly black), Pasquin, Passetout, Prince Frederick, Prince Saxe Weimar, Sir Joseph Paxton, Commander, Beauty of Haarlem, Grand Vidette, Orondates, Prince Albert, Bleu Mourant, William I., Deucer. *White:* Alamode, Prince of Waterloo, Sceptre d'Or, La Virginite, Grand Vainqueur, La Candeur, Queen Victoria, Rousseau, Voltaire. *Yellow:* Boquet d'Orange, Louis d'Or. The effect in using these is in judicious massing—the whites to confront the reds, and the yellows against the violets, with a succession of repetitions of the same variety, and you may have something of a show. People who have not yet planted bulbs, may still do so with perfect safety, but not a moment should be lost. Any good garden soil will do for them, if improved with a little sand, and old manure. The compost I use for pot-culture is well-rotted dung, chopped turf, yellow loam, and coarse sand, in equal parts. A few oyster-shells are put in for drainage; the compost is then pressed in firm almost to the level of the edge of the pot, the bulbs are then pressed into it, and the pots are heaped up with sand, so as to form a cone on the top of every pot; they are then half-plunged in a bed of coal-ashes, fitted with rails on pots for nets. Those potted on the 6th of November will not be touched till the end of December, when the sand will be carefully removed, and they will have their first dose of liquid manure, very weak. During severe weather, some spare lights will be placed over them, supported at the corners by pots turned upside down, and, whenever necessary,

[GONIOPHLEBIUM LORICEUM, ETC.]

[SELAGINELLA MARTENSII.]

[S. FORMOSA.]

a few mats can be thrown over all; but any mere white frost may be kept off with a net. Hardy bulbs want as much air as they can have, and need to be kept back rather than hastened in growth, the object of potting early, and earthing them over, being to get good roots, without which you cannot have good bloom, or preserve the strength of the bulbs to another season. Tulips, scillas, Dog's-tooth violets, tritonias, agapanthus, ixias, for autumn blooming, and even lachenalias I treat in the same way, for the two latter are as nearly hardy as they can be, and only want a little watching that they are not caught with frost, and, if put to shifts, a large pot may be turned over each, and buried in straw, or better still, a bell-glass under the light, and a net over all, especially with a few boards on edge all round to keep the roots warm.

Now, I will suppose some of our readers to be still in want of bulbs. From the foregoing it will not be difficult to make at least one step. As to crocuses and snow-drops, they ought to be grown by the thousand, for you can move them at any time, even in full bloom, and that is why I rarely pot them, but grow them in rows already for lifting in colours when required. Then, for early tulips, get plenty of Vermillion Brilliant, Waterloo, and Sunbeam, for scarlets; Yellow Prince, and Trianon, for yellow; Grand Lilas, and Semiramis, for violet; and Beauté sans Pareille, for purple; and have plenty of each, and either pot them, or plant in patches of one colour, seven in a patch about your beds and borders. Duc Van Tholls of all colours should be potted in plenty for the windows and the greenhouse, and the showy parrot tulips come in well to mix in the front of evergreen shrubs. But if named sorts are too costly, get mixtures of hyacinths at 3s. 6d. a dozen, and tulips at 2s. to 4s a dozen, Gladioli and Crown Imperial, equally cheap, and plant in the natural soil, according to your fancy, the crown of the bulb not more than five inches below the level of the surface.

Several friends have written to me lately, asking for information about fern cases and lycopodiums. For a statement of my views in regard to Wardian cases generally, I must refer to the first number of the "Floral World," where, in the description of a fern vase, I entered somewhat at length into the principles on which small plant-cases should be managed. A soil of sandy peat, in sweet and friable condition, will grow almost any fern or lycopodium, and, in small cases, air should be given occasionally, just as in the management of a greenhouse. Regular ventilation will allow of more plentiful watering, which those plants rejoice in, and the warmth of a room in which there is a fire all winter, will be sufficient for any of the greenhouse ferns which are commonly grown in fern cases. This season, to increase my space for such things, I have grown a number of ferns and lycopodiums in Pascall's fern pots, which were described in a former number. Of these I have had three figured. The centre one is Lycopodium (Selaginella) Martensii, a lovely bright green lycopod, that grows to a height of sixteen inches with firm stems, and an abundance of delicate white roots from the under sides of its lovely fronds. The figure conveys but a poor idea of its exquisite beauty. The specimen is in a common fern shade of sixteen inches diameter, and twenty inches high to the top of the glass. It is planted in sandy peat surrounded with a few blocks of stone, amongst which grow apoda, cæsia, and variabilis, three of the prettiest of the selaginellas for surfacing. The other two are in Pascall's pots with bell-glasses; the left-hand one is planted with Goniophlebium loriceum, Niphobolus rupestris, and Niphobolus pertusus, three pretty greenhouse ferns, the two latter creeping, and with thick tongue-shaped fleshy leaves. In this, the surfacing is apoda, very minute, and of a livid green, and cæsia, the foliage of which is of a rich lustrous metallic blue, and the habit most elegant. The right-hand specimen is formosa, a splendid selaginella, which, since May last, when a mere scrap of it was planted in a seven-inch pot, has completely filled the glass with its massive and involved fronds, smothered underneath with delicate white roots,

which creep down and take hold of the soil. In other of Pascall's pots, and in vases and Wardian cases, I have serpens, than which nothing can be more elegant in habit, and the tint of the most lively green; mycrophylla, very small but distinct and pretty; Pœppigiana, with foliage apparently succulent, but nevertheless quite dry, and curving down to the soil. Of the blue tinted kinds I have, besides cæsia, Africana and lævigata, a climbing kind, but they are more tender than cæsia, and not so good to recommend, except to experienced fern growers. Denticulata, the commonest of the family, is as hardy as any English fern, and of most rapid growth, and may be used in any way, either in pots or rockwork, in the greenhouse or stove—for it will stand heat—or even to creep amongst roots in an outdoor fernery in a sheltered spot. One use I turned it to this summer, was to surface a large shallow pot containing ferns, which stood on the top of some rockwork in a large aquarium, the bottom of the pot just touching the water. There it has done famously, and has crept down all round, and formed an elegant fringe, with its delicate roots reaching to the water. I planted a mere scrap in a Wardian case thirty inches wide, last spring, and it has run over the whole in such a riotous manner, that next spring I shall be obliged to root it out. Helvetica is another that may be used in a similar way, but is not so hardy as denticulata.

To grow these curious and beautiful plants, get a supply of Pascall's pots, and have glasses fitted to them—(as there is sometimes a difficulty in getting the glasses to fit, I generally send my pots straight to Messrs. Phillips, of 180, Bishopsgate-street, and leave the matter to them. The glasses cost from ninepence to a couple of shillings each, according to size) —plenty of crocks, powdery peat and silver sand, pressed firm, with a few blocks of granite, or other rock on the surface, and then plant the lycopodiums, allowing plenty of room, because they spread fast. A good watering must be given, and the glasses kept close for a few days; after that give them air once or twice a week, and keep just moist. They are less trouble, even than ferns, because they like a close, moist air, and but a moderate amount of light. The specimens here figured have not had water since September last, and yet are in splendid health, and will go through the winter in the windows of the drawing and sitting-rooms, but serpens, mycrophylla, lævigata, and others that are more tender, will be kept with other greenhouse stock, at a temperature of 45 to 50 degs., till the return of spring. Those who are not familiar with the family, cannot do better than begin their culture in pots under bell-glasses, and take the sorts I have specified as most hardy. Martensii having no equal in the vegetable kingdom for grace and majesty, the broad fronds shining as if varnished and veined with dark lines, that have an exquisite appearance when seen against the light, may be made the centre-piece for a large pot or vase, and must have at least sixteen inches of space for each way. Formosa will do in a six or eight-inch pot, with a bell-glass seven or eight inches high, to be shifted when large enough, to a larger pot or glass dish, with a glass eighteen or twenty inches high. Apoda is the closest and the densest growing of them all, having the appearance of a delicate, fresh green moss, the fronds dotting the surface with a charming distinctness; and variabilis, if grown in a warm place, will give delight by its glittering colours of white, yellow, and green, and it is so phosphorescent that you may see it in the dark. Those who are used to ferns, will find no difficulty in treating lycopodiums, but the sorts must be chosen according to the amount of heat at command.

TO CORRESPONDENTS.

THE GARDEN ORACLE.

We tender our hearty thanks to the many correspondents who have expressed their approbation of the "Garden Oracle and Economic Year Book for 1859," and we have the pleasure of informing our friends that its sale has already been such as to insure its continuance. Though we did not get it out till the 14th, the impression is now nearly exhausted, and though it makes more pretension to usefulness than elegance, it has won for us golden opinions, for which it is our duty to be thankful. The list of greenhouse plants to bloom every day in the year, was a feature altogether new to garden almanacs, and it was compiled with such strict regard to the wants of amateurs generally, so as to present a list of 365 of the most useful and easily-managed greenhouse and conservatory plants, that that alone is, we are confident, worth more than the cost of the whole work. If we had spread it out in large type, and contented ourselves with the usual meagre calendar, it would have occupied nearly thirty pages, but we dealt with the Almanac as a tourist does with his carpet bag—we stuffed it as full as it would hold, with articles of real utility. As the edition is nearly run out, intending purchasers should order it at once, as the type, having been distributed, it may not be politic for us to reprint it after the year has turned.

PLANT AND SEED EXCHANGES.

F. A. S. has eked out the Indian seeds much farther than they were expected to go, and the stock is now exhausted. There are still, however, many applications which came in since the middle of the month, and F. A. S. will endeavour to complete the lists as far as the remaining seeds allow. Of many of the sorts F. A. S. has parted with the whole stock to readers of the "Floral World," and of those she most desired, has kept but two or three each. This is mentioned only that the few late writers that may happen to be disappointed, may not consider themselves slighted. The applications were numerous beyond all expectation, and all who stated distinctly what they wished for, were supplied as far as the seeds would go. F. A. S. will please to receive the sincerest thanks of the many correspondents she has obliged, together with those of the Editor of the "Floral World,"

*** The First Volume of the "Floral World," containing 288 pages, and 100 wood cuts, with two coloured prints, is now ready, and may be had of all booksellers, or, post free, from the publishers, price 6s., elegantly bound in cloth. The volume would form an appropriate present to a friend or relative fond of gardening.

Roses and Bedding-plants in London.—*Subscriber.*—You have misunderstood "new manure" for "new soil." There is nothing like *fresh soil* for all kinds of flowers, and the best for the purpose is the top spit of a pasture, and the older the pasture, the better. Whether you should change the soil from the borders to the beds, and bring up the subsoil, depends upon the texture and quality of the material to be dealt with, and whether or not the bedders did well this past season. Will the soil grow a cabbage? If it will, scarcely any kind of flowering plant will do badly in it. If you believe it to be worn, change it as far as circumstances allow, and, in February, give the beds a dressing from the muck heap, and over that a sprinkling of sand, and fork them over, and leave the surface loose. Your great mistake as to the roses, was, having four feet standards. Whenever there is the slightest doubt of roses doing well, they should be planted on their own roots, and in rich deep soil. If standards are used, they should be on short stocks, with good heads, and well worked. The rubbish that the smaller seedsmen in London stick about their doorways, and sell at eighteen pence a piece, are rarely worth carrying home—they are the refuse of the trade, the sweepings of obscure nurseries, where picked plants would often be dear at a gift. There is nothing like sending to a country nursery, and telling the grower to send what he thinks best for your purpose, and the expense to which you are prepared to go. You then make him, to some extent, responsible, and have the advantage of his judgment. Yours, probably, failed for want of water at the roots and overhead. We believe that roses would thrive in many ungenial atmospheres, if they were played upon with an engine, morning and night, every day during the summer. Some years ago we grew cabbage, Provence, hybrid China, and a few perpetual roses in a very smoky town district; we used abundance of pig's-dung, and drenched them with water all the growing season, and they bloomed well, but were worn out in three years. The excess of stimulants, enabled them to resist smoke and confinement, but it eventually killed them just when they should have been in their prime. As several of our readers are in want of information about the growth of roses in the neighbourhood of towns, we offer the following lists of sorts as those most likely to succeed:—

ROSES FOR SMOKY ATMOSPHERES.

Hybrid Perpetuals. — Geant des Batailles, General Jacqueminot, Duchess of Norfolk, Leon des Combats, Jules Margottin, Dr. Marx, Jacques Lafitte, William Jesse, Madame Laffay, Mrs. Elliot, Duchess of Sutherland, Baronne Prevost, Madame de Cambacéres, William Griffiths, Auguste Mie, Souvenir de la Reine d'Angleterre.

Bourbon Perpetuals.—Boquet de Flore, Queen Pierre de St. Cyr, Louis Odier, Souvenir de Malmaison, Acidalié, Sir J. Paxton.

China.—Mrs. Bosanquet, Virginie, Fabvier.

Noisette.—Aimie Vibert, Ophirie, Caroline Marniesse.

Most of the French roses stand smoke well, and cabbage and Provence roses may be used freely in the borders, but should have as good culture as more expensive sorts. Tea-scented and moss roses are not at all suitable.

Epacrises and Ericas from Seed.—*S. S.*—The month of January is the best time to put in seeds of all stove and greenhouse plants, where there is command of the necessary amount of heat, to get the seedlings strong before summer; and sandy peat is, in ninety-nine cases out of every hundred, the best soil in which to give them a start. Your failures hitherto have arisen through attempting to raise them in too low a temperature, and keeping them too close when up. The pots or pans ought to be kept quite moist, and the surface of the soil should be sprinkled with silver sand to prevent damping. These plants form fine hair-like roots, and should, therefore, be transferred to turf-pits as soon as they are pricked out, three or four round a small pot, and the weather sufficiently advanced, as their roots are

then not so likely to suffer from the sun striking on the pots. A bed over a hot-water tank, with a temperature of 70° to start with, is the best way; but a sweet heat in a cucumber frame will do, but then it would be better to defer sowing till February. The pans in which the seeds are sown, should be covered with bell-glasses till the seedlings make their appearance, and then have air by degrees, and a temperature of 65°. Your first letter arrived too late for reply in the November number. With regard to the Indian seeds, we gave the names, and invited readers to choose for themselves. On those terms, they were freely accepted, and they have been distributed, far and wide, over the three kingdoms. But correspondents who asked for "*any* seeds F. A. S. might be able to spare," were treating us as if we were agents for the universal distribution of the stock of a seed warehouse. How could we undertake to make selections, when letters are pouring in every day containing precise lists of sorts wanted? With every desire to meet the wishes of our friends, and to carry on the "FLORAL WORLD" in a way to be profitable and agreeable to all, we never did, and never could have undertaken to make selections for anybody. It is no small matter to devote two or three whole days together in making up packets, in accordance with precise lists, but we performed that duty with pleasure, knowing that we were obliging a large number of persons who *knew what they wanted*, and it is very unpleasant to hear complaints from those who *did not know* what they wanted, and whose letters we must decline to answer for that simple reason. If we once began to distribute *ad libitum*, we should require a seed warehouse and a staff of clerks, and we should like to know who would care to give seeds to applicants possessed of no definite idea or purpose respecting them?

LAWN WITH BEDS. — *M. A. Arnold.*—We have looked over your plan carefully, and can scarcely come to any definite conclusion with regard to it, simply because between a view of the ground and an outline on paper, there is all the difference between a thing seen and a thing imagined. However, judging the plan according, to our own taste, we should say you have too many small beds, and not one distinct and striking feature. We should turf over every one of those little crescent-shaped beds, and the two star-shaped beds on the main breadth of the lawn; then we should have a border all round, namely, under the fence right and left, and under the paling at the back, and at the two corners, where the evergreen fence meets the wooden paling; at each side, the border would be brought round in a curve, so as to destroy the angularity of the plan. Those borders we should plant with hollies, rhododendrons, phillyreas, berberies, arbor-vitas, &c., with spaces for flowers between, and the two rounded corners would be elevated three or four feet, with a green bay or Minorca holly on each, to form a pair of handsome trees to look cheerful all the winter; then a fine bed of Americans in the centre of the lawn, and flower beds at the two corners would complete it, and the ground would have some bold features about it; at present it has none, and must, as you say, look bare. You would then require fewer bedding plants, and have a much better effect, because the details would be bolder and more simple. But then comes the question, what is your climate?—what soil have you?—do you live on the top of a mountain or down in a marsh? When we know none of these points, we are obliged to guess at conclusions, and may just guess wrong.

FIG-TREE IN FRUIT.—*S. Baker.*—In some parts of Devonshire, where geraniums stand out all the winter, the second crop of figs is generally the best, and is preserved without any trouble, but in your eastern climate, we doubt if you will find it an easy matter to save even a fourth part of the young fruit now on the trees. Our advice is, to remove all the largest of the fruit, and leave on the trees only those that are no larger than peas. If these get through the winter, they may furnish a fair quantity of ripe figs next season. The largest will be the first to suffer if we have a severe winter, and the longer they remain on, the more they exhaust the trees, and interfere with the production of the first crop next year; so make no scruple to sacrifice them. As to protection, we advise you to use none which will be likely to coddle the trees at all. During sharp winds without frost, a breadth of Haythorn's hexagon net would be the best, to which add some Russian mats during frost, removing the whole during mild open weather. If unnailed, the branches should be tied round with loose straw during frost, with some chance of keeping the young fruit alive; but we are not much in favour of unnailing in such a case as these figs, because the operation gives a check, which, however beneficial in some cases, is hardly in favour of the fruit holding on when spring comes. How have they fared in former winters? On that question will turn very much that of the preservation of the fruit now on them.

CITY FLOWERS.—*Rev. H. J.*—If Lilium lancifolium does well in your city churchyard, you may take encouragement to grow all the kinds of hardy bulbs there. Hyacinths and early tulips do well in city atmospheres if they have a good soil. With the exception of the polyanthus, be careful not to waste patience on any of the primula tribe, till you see your way clear with them, for they are very impatient of smoke. Carnations we can give you but little hope about, but cloves and any of the better kinds of pinks would do. The following really good flowers bear smoke well, and, in your hands, will be sure to succeed. Dielytra spectabilis, Christmas rose, yellow and white Alyssum, Aubretia purpurea, sweet William, sweet Scabious, Lily of the Valley, (when once planted not to be removed again for seven years,) double Rocket, Aster fulvis, a lovely autumn flower, Statice latifolia, Althea frutex; all the showy kinds of annuals and popular bedders, except white-leaved geraniums and heliotropes. Ageratums will do and give a useful colour. Among your annuals make sure of the common red Valerian, (Centranthus macrosiphon); we grew it some years ago in town, in a worn-out soil, and it did amazingly well; indeed, we have never had it so good since, even in fresh air and as good a soil as was ever turned with the spade.

TULIP NOMENCLATURE. — *Amateur.*— Tulips are classed under four heads, only three of which are reckoned as show flowers. *Biblœmens* are those which have violet, brown, or purple marks on a white ground; *Bizarres* have purple, scarlet, and rose marks on a yellow ground; and *Roses* have white grounds with rose tintings of various shades, from blush to deep crimson. These terms are commonly abbreviated to Bib., Biz., and R. The fourth class are selfs, or, as they are termed by tulip-growers, *Breeders*. When they *break*, that is, assume new variegations, which does not happen sometimes till they have been cultivated for from seven to twenty years, they go to the classes to which their colours assign them. The marks on the petals are called by the terms *flamed* or *feathered*: the feather occurs on the edge of the petal, and the flame in the centre of the petal. Sometimes a flower is both flamed and feathered, in which

case, the hues from the centre meet those on the edge. The regularity and tone of these markings frequently makes all the difference in value between twenty pounds and twenty pence: *Charles Williams* sells at £20, but by an unpractised eye, would be thought no better than many that may be bought for two or three shillings each.

SEEDS WANTED FOR NEW ZEALAND.—A respected correspondent solicits the aid of readers of the "FLORAL WORLD," in the collection of seeds of trees and shrubs for transmission to Canterbury, New Zealand. Seeds not easily procurable will be most acceptable, but seeds of any of our favourite forest trees, evergreens, &c., will be gladly received. "I need scarcely remark," he says, "that everything that grows in this country will grow also in New Zealand, though much faster, and with more luxuriance. I consider it a pleasing task to retain in the colonies the memory of Old England and all its dear associations, and I think no apology will be necessary in asking your readers to assist me in helping to clothe the Britain of the South with the foliage of the mother country. The Canterbury plains are very destitute of trees, which are much required to protect the emigrant's home from the violent winds which prevail there, and pines, spruces, firs, &c., would be especially acceptable." We shall rejoice if our readers will render us the medium of assisting our correspondent in making up his parcel of seeds, and we will receive for him any packets that may be sent prepaid to our publishers, addressed in the usual way, and with the superscription, "Cantab."

CHRYSANTHEMUMS FROM SEED.—*Amateur.*—Sow at end of January, in pans or pots filled with fine soil, and cover the seed with silver sand. Water with a fine rose, and lay a square of glass over each pot, to obviate the need of any more watering till the seedlings appear. They must be started in a gentle heat, and as soon as they have three or four leaves a piece, pricked out round the sides of the pots, in little batches so as to break the roots as little as possible, and be kept in a temperature of 55° to 60°. When they begin to crowd each other, pot them singly into sixties, and the most forward may be planted out in May and June, and the majority will flower the same year. Growers of seedlings of whatever kind, should remember that plants flower sooner in pots than in the open ground, and it is better in most cases, to flower seedlings in pots without stopping or attempting to make specimens, until they prove themselves worthy of further culture, for seedlings will generally give more bad flowers than good ones, but it is to get the good ones that we take the trouble. Chrysanthemum seed is regularly imported from France and Italy.

HELIOTROPES, ETC., IN WINTER.—*Lilian* must not trust so tender a plant as the Heliotrope in a frame all the winter, for it is one of the very first of greenhouse plants to feel the effects of frost. If Lilian has no greenhouse, she must keep her plants in a warm room, having first pruned them to moderate dimensions. They should never be allowed to get very dry, and now and then should have a sprinkle of tepid water from a fine rose of a water-pot, to wash off dust and keep them in health. If they cannot be accommodated with a place where the temperature rarely falls below 35° or 40°, then we would advise her to throw them away, and save all the bother, because young plants can be had from the nurseries in spring for a mere trifle, two or three shillings a dozen. Salvia patens ought to do in a frame if protected in severe weather, and would be sure to prosper in a window, if taken care of. Most of the good greenhouse salvias are nearly as hardy as fuchsias, and so long as they do not get quite dry and dusty, rarely perish if kept just out of reach of severe frosts.

GERANIUMS, ETC., IN A CUPBOARD.—*Novice.*—Your query about putting plants in a cupboard escaped us last month. Every plant which has leaves on it during the winter, must be preserved in full daylight, and even when geraniums are stripped of their leaves and hung up, they require light to keep their green stems in health. We hope you have no intention of tying up any but scarlet geraniums, because they are the only bedders that will live on such a plan. If hung up in the light, in a dry place, and examined every week, they will keep moderately plump till February or March, and must then have their roots thinned close, potted in very small pots, with three parts silver sand, and one part fine loam, very slightly moistened and put in a warm place to begin their growth for the season. Much water would kill them outright, until they have began to shoot, after which, prune them, and let them grow as fast as they like with greenhouse temperature, and shift whenever they fill their pots with roots, using, after the first potting, loam three parts, and sand one part.

DEALERS AND PURCHASERS.—We have lately received a number of applications for the names of dealers to supply various plants and seeds. We could, of course, name the best men for the several kinds of goods required, but it would be absolutely wrong to do so, and, however honestly the task might be performed, it would be open to suspicion of favouritism and jobbery. Suppose we recommended Mr. A or B, might it not occur to some of our readers that we had an interest in Mr. A. or Mr. B's. trade, and were doing the gentle office of puffing him? We are independent of every trade interest, and not only wish to continue so, but also to appear so on the face of things in our communications with our readers. When we do name tradesmen, there are special and obvious reasons for doing so, as when a novelty is brought out, the name of the inventor or producer, with the price of the article, are necessary items of its history.

MELONS AND CUCUMBERS FOR SHOW.—*H. P.*—*Melons*: Beechwood, Bromham Hall, Windsor Prize, Snow's Green Flesh, Russian Water. —*Cucumbers*: Norfolk Hero, Essex Rival, Carter's Champion, Ipswich Standard, Latter's Victory, Highland Mary. A new white spined cucumber from India, which grows to extraordinary dimensions, and which has not yet been named, may be had of Mr. Clark, of 25, Bishopsgate-street, London, where a ripe fruit may be inspected. It is of excellent shape, small neck, and the proportions very symmetrical. As far as size is concerned, it leaves all the old varieties far behind. Your plan of pitting bedding-plants over dung in a pit, though with a bottom of tiles and dry sawdust, is one we cannot recommend to our readers. We do not say you will not succeed, indeed, we have no doubt you will, but to recommend such a plan would be likely to lead many into error.

DESTRUCTION OF GREEN-FLY.—"I find bitter aloes a certain remedy for green-fly, and far preferable to the use of tobacco smoke. Dissolve half a pound of aloes in half a pint of boiling water, and add the mixture to four gallons of water, and either dip the infested plants into it, or syringe them freely. It kills the fly, and renders the foliage so bitter, that, if the fly appears again, it is only on the young

leaves that have grown since the operation was performed, when another dose settles them for the season. The aloes need not be washed off as it does no harm. As the cost of the aloes is only 8d. a pound, this is a great saving over tobacco, and a more cleanly and expeditious method.—*C. C. H., a Well Wisher*—[Aloes is an old remedy, and is recommended in that excellent work, *Jones's Dictionary of Gardening Receipts.*"]

Andromeda formosa.—*C. Mc. C.*—Formosa is quite hardy in a good peat soil, and you would, probably, get on better with it by turning it out. You do not say how it has been treated, generally. In a greenhouse it needs as much air as a Cape heath; but what state are its roots in?—perhaps water-logged, or more likely still, the soil consolidated into a large ball, so that the water trickles over it, and without moistening the fine fibres at all. Turn it out of the pot, and see how the case stands, and, if the ball is hard and impervious, break away some of the soil all round with a fine stick, and repot it into a pot a size larger with peat, leaf-mould, and silver sand in equal proportions. When firmly potted, stand it in a pail of water barely tepid for a few hours, to soak the old ball through, and after that, give no more water till the soil is nearly dry.

Keeping Fuchsias.—*Rev. P. Kinman.*—Fuchsias laid on their sides under a south wall, and covered during frost with mats, &c., would be likely to lose their stems during the winter, but the roots would throw up shoots in the spring. Should the winter be severe, and the soil in pots be frozen through, they would perish, but a slight frost would not hurt them, and the plumpest and hardest of the stems, would, probably, survive. Under the stage, in the greenhouse, is the usual place for wintering fuchsias, and, when they break in spring, they have a little encouragement to make a good start for blooming. Dark fuchsias are the hardiest, and are the best to leave in the open ground, cut close over, and the crowns covered with coal-ashes.

Pruning a Myrtle.— *Rose.*—Cut back all the gross shoots to within one or two buds of the base. The reason they do not flower is because they grow too fast, and the reason the others flower is because they do not grow at all, or only sufficient to keep up a succession of bloom-buds. Too fast a growth is inimical to the production of flowers in all trees and shrubs alike; therefore, in addition to cutting in the rank shoots, it would also be well to open a trench at a radius of three feet from the stem, and cut all the roots in to that space to a depth of two or three feet, then fill the trench in with brickbats to be rammed in hard, so as to confine the roots to that space, you may then expect your plant to flower all over alike.

Artichokes.—*Novice.*—Break the stems over close to the ground, clear off the old leaves, but do no harm to the centre or side shoots; then fork over the bed, and throw the earth in a ridge, nine inches high over each plant, but keep the crumbs from the heart; then pile a lot of litter four inches thick, round each plant, and over all put two inches of coal-ashes sifted fine. In the spring, the ashes are to be forked in, and are an excellent manure. Dielytra spectabilis is as hardy as a monkshood, and will throw up new shoots in just the same way in spring. Cut it close over, and pile a spadeful of old dry dung over the crown in a convex form, and so trust it to the elements.

Calceolaria Amplexicaulis. — *A Subscriber* advises a more extensive culture, by amateurs, of this beautiful bedder, which he finds to do better from spring than from autumn cuttings. He says, "it would be of great service to us amateurs to give each other hints on these subjects, and a periodical not in the interests of the trade might allow it." As we have not the remotest connection with any trade interest, and not one single pet nurseryman or seedsman to recommend, why should not the "Floral World" be a free medium of intercommunication between the lovers of horticulture in all its several branches? There is every reason why it should.

Tool for Trenching.—We have some of Parkes's steel forks supplied by Burgess and Key, which seem equal to any sort of work; though slight, the material is so tempered as to be capable of very tough work. Forks are displacing spades and draining tools everywhere. With a good one, a man can do one-third more work per day, than with any of the old-fashioned tools. Coal-ashes are largely used as a dressing for stiff land and are in no way objectionable if finely sifted, but when cinders abound, they do harm, because no plant will make roots about them. Fine ashes are a first-rate dressing for peas and beans.

Catalogues and Books Received.—Charles Noble, Bagshot, "Catalogue of Ornamental Plants," including gentiana fortuni, farfugium grande, thujopsis dolabrata, hardy conifers, Americans, roses, fruit trees, &c.—John Standish, Bagshot, "Catalogue of plants, grown at the Royal Nursery," including camellia reticulata, flore-pleno, hardy ornamental trees and shrubs, rhododendrons, kalmias, ericas, fruit trees, roses, greenhouse plants, &c.—"Index Filicum, a synopsis of Genera, and Species of Ferns," by Thomas Moore, author of the "Handbook of British Ferns," &c. Part 5. Pamplin, Frith-street, Soho.

Books on Ferns, etc.—*E. E.*—Either "Moore's Handbook of British Ferns," or Johnson's "British Ferns popularly described," will suit you. Lowe's "British and Exotic Ferns" is a superb work, copiously illustrated in colours, but is, perhaps, too extensive in its treatment of the subject for you. For good practical notes on fern culture, and selection of sorts for the hardy fernery and greenhouse, you cannot do better than consult "Rustic Adornments." The information sought respecting vines in pots is given in an article. We cannot recommend dealers.

Turnip-greens.—*Rev. J. Ramsey.*—Turnips put in drills for an early crop of greens, should be covered with six inches of coal-ashes, or any other similarly clean material. When they appear through the tops of the drills, the material should be removed down to the bulb, and the blanched stems cut clean away and covered over again for another growth. Swedes furnish the sweetest greens. Your letter was answered in the way you requested, by writing replies opposite to the queries, and the replies were posted in the envelope you sent.

Guano.—*R. H. W.*—Keep your bag of guano till spring, then use it to whatever kitchen crops you want to grow fast, as a liquid manure. Mixed with soot or wood-ashes, it is a good dressing for onions, cabbages, and other rank feeders, either sown on the surface dry, or mixed with water. See hints on the same subject to another correspondent.

Cuero-guano.—A correspondent wishes to know from those who have used the above manure, what are the best modes, and in what proportions to apply it. Having never used it ourselves, we cannot advise. Best Peruvian guano should never be used stronger than half an ounce to a gallon of water;

FLORISTS' FLOWERS.—*B. B.* — We are preparing some really useful lists of the best Florists' Flowers, new and old, which will be of great service to those of our readers who grow for exhibition, as well as to purchasers of flowers generally. The series will commence next month.

TULIP-BED.—*B. B. B.*—A description, with sectional cut of the Lancashire mode of making a tulip-bed, are to be found in number two of *Garden Favourites*, together with a description of the properties of tulips.

FERNS.—*E. W. C.*—1. Allosorus crispus; 2. Polystichium lonchitis; 3. Cystopteris montana. If you have plants to spare, Mr. Hibberd would be glad of 1 and 3, and would remit ferns or lycopods in exchange for them.

*** Subscribers who have any difficulty in obtaining the "FLORAL WORLD" regularly, should send four shillings in stamps, with name and address plainly written, to our publishers, and they will receive it regularly for twelve months. Subscriptions sent now, will ensure its transmission to the close of 1859. There is no extra charge for postage; we pay that ourselves. We have to thank numerous correspondents for allowing their queries to stand over from last month, when a heavy press of engagements prevented us attending to any except such as would have lost interest by delay.

METEOROLOGICAL CALENDAR FOR DECEMBER.

31 DAYS.		WEATHER NEAR LONDON, DEC., 1857.					31 DAYS.		WEATHER NEAR LONDON, DEC., 1857.				
		BAROMETER.		THERMOM.		WIND.	RAIN.			BAROMETER.		THERMOM.		WIND.	RAIN.
		MAX.	MIN.	MX.	MN.	MN.				MAX.	MIN.	MX.	MN.		
W.	1	29.904	29.793	62	34	48.0	S	.02	F.	17	30.131	30.089	57	48	52.5	S	.04
Th	2	30.012	29.941	58	43	50.5	S	.00	S.	18	30.140	29.941	54	30	42.0	SW	.04
F.	3	29.751	29.712	56	44	50.0	S	.04	S.	19	30.182	30.042	48	23	35.5	SW	.00
S.	4	30.025	29.904	55	25	40.0	SW	.00	M.	20	29.989	29.786	50	40	45.0	SW	.07
S.	5	30.242	30.116	53	27	40.0	W	.00	Tu.	21	30.050	29.964	54	46	50.0	SW	.01
M.	6	30.296	30.119	56	49	52.5	S	.02	W.	22	30.200	30.097	56	50	53.0	SW	.00
Tu	7	30.479	30.348	55	30	42.5	SW	.00	Th.	23	30.341	30.292	57	43	50.0	SW	.00
W.	8	30.633	30.548	47	35	41.0	S	.00	F.	24	30.381	30.293	53	42	47.5	SW	.00
Th.	9	30.399	30.266	50	42	46.0	S	.00	S.	25	30.315	30.238	55	26	40.5	SW	.00
F.	10	30.371	30.317	54	32	43.0	SW	.00	S.	26	30.339	30.278	46	36	41.0	W	.00
S.	11	30.548	30.470	49	27	38.0	SW	.00	M.	27	30.364	30.232	44	24	34.0	N	.00
S.	12	30.637	30.601	50	39	44.5	SW	.00	Tu.	28	30.420	30.411	40	28	34.0	W	.00
M.	13	30.595	30.429	43	37	40.0	SW	.00	W.	29	30.485	30.451	48	34	41.0	W	.00
Tu.	14	30.362	30.140	52	40	46.0	SW	.00	Th.	30	30.535	30.510	43	27	35.0	W	.00
W.	15	30.123	30.071	50	45	47.5	SW	.00	F.	31	30.504	30.435	44	25	34.5	E	.00
Th.	16	30.078	30.034	54	43	48.5	SW	.10									

AVERAGES FOR THE ENSUING MONTH.

DECEMBER is a most uncertain month, and whether warm or cold, is trying to vegetation, so many plants having not yet got thoroughly to rest. December was unusually warm last year, as shown by the above returns; we had frost on only twelve nights, and those were not severe. In the first week, the temperature was 2½°; the second week, 5°; the third week, 6 1-8th°; and the fourth week, 1 1-5th° above the average. The long course of east winds and sharp frosts that have visited us during the past month, leads us to expect heavy rains and mild weather till the close of the year. This, of course, is a mere conjecture, based on comparisons and averages; and December, 1858, may be as severe as December 1857 was unusually mild. During the past thirty-one years, the most notable extremes of high and low temperatures in December were as follows:—Highest, 7th, 1856, and 10th and 11th, 1848, —60°; 13th, 1842—61°; lowest 5th, 1844—14°; 12th, 1855—13°; 22nd, 1855—9°; 16th, 1853—7°. 7th and 8th, 1841—6°; 2nd, 1844—4°. During sixteen years past, the averages have been as follows: —Thermometer—max., 45°; min., 36°; mean, 40°; Barometer, 29.994; temperature of dew point, 37°; weight of water in a cubic foot of air, 2.6 grains; rain fall 1.5 inches.

PHASES OF THE MOON FOR DECEMBER, 1858.

● New Moon, 5th, 10h. 10m. a.m.
○ Full Moon, 20th, 1h. 6m. p.m.
☽ First Quarter, 13th, 3h. 29m. p.m.
☾ Last Quarter, 27th, 6h. 22m. a.m.

MEETINGS AND EXHIBITIONS, DECEMBER, 1858.

THURSDAY, 16th.—British Pomological, St. James's Hall; Meeting for Examination of Fruits.

*** *Secretaries will oblige by forwarding Announcements, Schedules &c., of forthcoming Exhibitions.*

03-22 MIN12 ECO
8 032919 997029
www.calibrisystem.com

UNIVERSITY OF ILLINOIS-URBANA
3 0112 129203474